

p3E1.2 DELETION SERIES PLASMIDS AND EXCISION ASSAY RESULTS

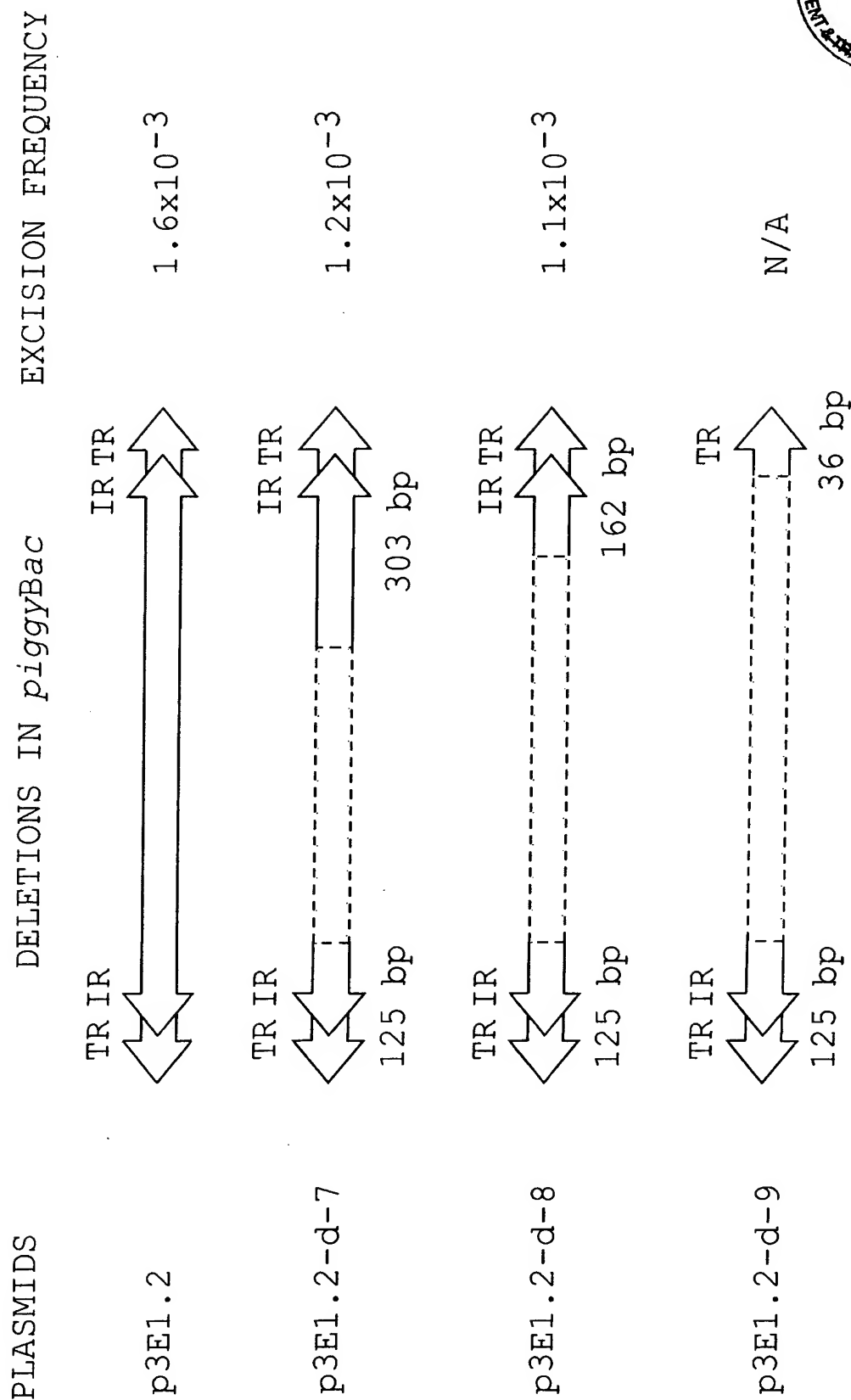


FIG. 1



PLASMIDS	INSERTION SEQUENCE	IPTA FREQUENCY
pIAO-P/L-TTAA	TTAA	0
pIAO-P/L-TTAA2	TTAATTAA	0
pIAO-P/L	TTAATCTAGAGGATCCTCTAGATTAA (XbaI/BamHI/XbaI) -- (SEQ ID NO:35) --	5.4×10^{-3}
pIAO-P/L-18 bp	TTAATCTAGACGTACGGCGAGCTTAA -- (SEQ ID NO:36) --	1.0×10^{-6}
pIAO-P/L-22 bp	TTAATCTAGCTAGTACTAGAACTAGATTAA -- (SEQ ID NO:37) --	3.6×10^{-6}
pIAO-P/L-40 bp	TTAATCTAGTTCTAGACGTACGGCGCAGTACTAGCTAGATTAA -- (SEQ ID NO:38) --	2.5×10^{-5}
pIAO-P/L-55 bp	TTAATCTAGTTCTAGACTGCGGCTCTCTAGACGTACGGCGGCGACTA- GTACTAGCTAGATTAA -- (SEQ ID NO:39) --	1.2×10^{-4}
pIAO-P/L-73 bp	63bp of Lambda PvuII fragment between XbaI sites of pIAO-P/L	1.3×10^{-4}
pIAO-P/L-212 bp	63 bp + 141 bp of Lambda PvuII fragment between XbaI sites of pIAO-P/L	3.1×10^{-4}
pIAO-P/L-354 bp	43 bp of Lambda PvuII fragment between XbaI sites of pIAO-P/L	2.9×10^{-4}
pIAO-P/L-589 bp	579 bp of Lambda PvuII fragment between XbaI sites of pIAO-P/L	3.2×10^{-4}
pIAO-P/L-2.2 kb	2.2 kb of Lambda HindIII fragment between XbaI sites of pIAO-P/L	3.4×10^{-4}

FIG. 2(A)

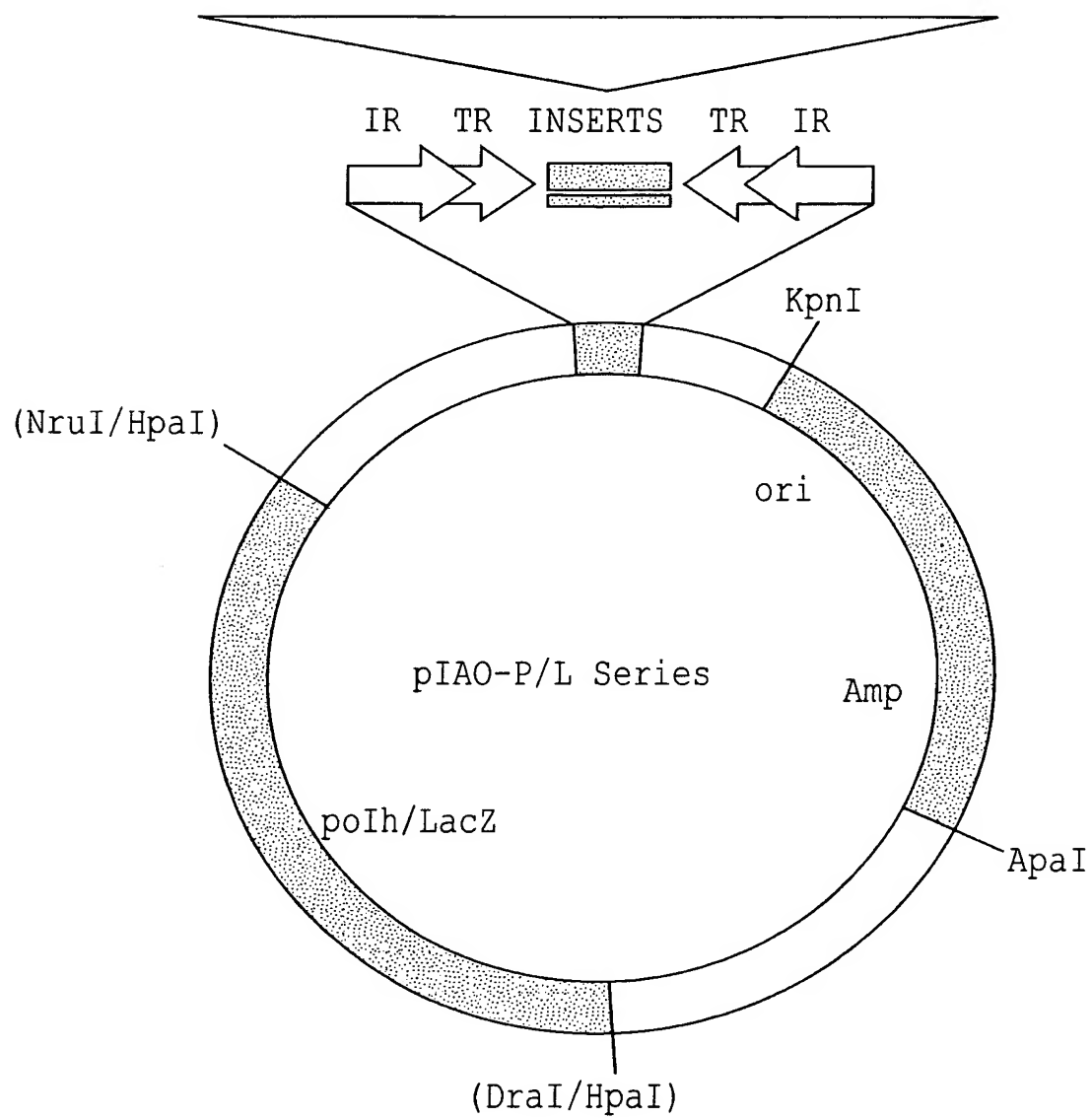


FIG. 2(B)

Sequence Range: 1 to 7670

```
100 AACCGCGGGGAGAGGCGGTTTGGCGTATTGGGCGCTCTTCCGCTTCCCTCGCTCACTGACTCGCTCGGCTCGGTCTCGGCTGCGGCGAGCGGTATCAGC
200 TCACTCAAGGCGGTAATACGGTTATCCACAGAAATCAGGGGATAACGCAGGAAGAACAATGTAGCAAAAGGCCAGCAAAAGCCAGGAACCGTAAAAAG
    >Ori
    |
    |
300 GCCGCGTTGCTGGCGTTTTTCCATAGGCTCGGCCCCCTGACGAGCATCACAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAA
400 GATACCAGGCGTTTCCCCCTGGAAGCTCCCTCGTGGGCTCTCCTGTTCGACCCCTGCCGCTTACCGGATACCTGTCCGCCCTTCTCCCTTCGGGAAGCGT
500 GGCGCTTCTCAATGCTCAGCGTGTAGGTATCTCAGTTCGGTGTAGGTGCTTCCGCTCCAAAGCTGGGCTGTGTGCACGAACCCCCGTTCAGCCCCGACCCG
600 TGCGCCTTATCCGGTAACTATCGTCTTGAGTCCAAACCCGGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGT
700 ATGTAGGCGGTGCTACAGAGTTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGGACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTT
800 CGGAAAAAGAGTTGGTAGCTCTTGATCCGGCAAAACAACCCCGCTGGTAGCGGTGGTTTTTTTGTTCGAAGCAGCAGATTACGGCGCAGAAAAAAGGA
900 TCTCAAGAAGATCCTTTGATCTTTTCTACGGGCTGTACGCTCAGTGAACGAAAACTCACGTTAAGGATTTTGGTCATGAGATTATCAAAAAGGATCT
1000 TCACCTAGATCCTTTTAAATGAAAGTTTAAATCAATCTAAAGTATATATGAGTAAACTTGGTCTGACAGTTACCAATGCTTAATCAGTGAGGC
<W H K I L S A
< AMP RESIST
```

FIG. 2(C1)

1100
 ACCTATCTCAGCGATCTGTCTATTTCGTTTCATCCATAGTTGCCTGACTCCCCGTCGTGTAGATAACTACGATACGGAGGGCTTACCATCTGGCCCCAGT
 <G I E A I Q R N R E D M T A Q S G T T Y I V I R S P K G D P G L
 < AMP RESIST

1200
 GCTGCAATGATACCGCGAGACCCACGCTCACCGGCTCCAGATTATCAGCAATAAACCCAGCCGGAAGGGCCGAGCGCAGAAAGTGGTCTCTGCAACTT
 <A A I I G R S G R E G A G S K D A I F W G A P L A S R L L P G A V K
 < AMP RESIST

1300
 TATCCGGCTCCATCCAGTCTATTAAATTGTTGCCGGGAAGCTAGAGTAAGTAGTTCGCCAGTTAATAGTTTTCGCAACGTTGTTGCCATTGCTACAGGCAT
 <D A E M W D I L Q Q R S A L T L L E G T L L K R L T T A M A V P M
 < AMP RESIST

1400
 CGTGGTGCACGCTCGTCGTTTGGTATGGCTTCATTACGCTCCGGTTCCCAACGATCAAGCGGAGTTACATGATCCCCCATGTTGTGCAAAAAGCGGTT
 <T T D R E D N P I A E N L E P E W R D L R T V H D G M N H L F A T
 < AMP RESIST

1500
 AGCTCCTTCGGTCCCGATCGTTGTCAGAAGTAAGTTGGCCGCGAGTGTATCACTCATGTTATGGCAGCACTGCATAAATCTTCTTACTGTCATGCCAT
 <L E K P G G I T T L L L N A A T N D S M T I A A S C L E R V T M G D
 < AMP RESIST

1600
 CCGTAAGATGCTTTCTGTGACTGGTGAGTACTCAACCAAGTCATTCTGAGAATAGTGTATGCGGGGACCGAGTTGCTCTTGCCCCGGCGTCAATACGGGA
 <T L H K E T V P S Y E V L D N Q S Y H I R R G L Q E Q G A D I R S
 < AMP RESIST

1700
 TAATACCGCGCCACATAGCAGAACTTTAAAGTGCTCATCATTTGGAACCGTTCTTCGGGGCGAAACCTCTCAAGGATCTTACCGTGTGAGATCCAGT
 <L V A G C L L V K F T S M M P F R E E P R F S E L I K G S N L D L
 < AMP RESIST

FIG. 2(C1) CONT.

1800
TCGATGTAACCCACTCGTGCACCCCACTGATCTTCAGCATCTTTTACTTTCACCAGCGTTTCTGGGTGAGCAAAACAGGAAGGCAAAATGCCGCAAAA
<E I Y G V R A G L Q D E A D K V K V L T E P H A F V P L C F A A F F
< AMP RESIST

1900
AGGCAATAAGGGCGCACACGGAAATGTTGAATACTACTCTTCCTTTTCAATATTATTGAAGCATTTATCAGGGTTATTGTCTCATGAGCGGATACAT
<P I L A V R F H Q I S M -- (SEQ ID NO:58) --
< AMP RESIST

2000
ATTTGAATGTATTAGAAAAATAAACAATAGGGTTCGGCGCACATTTCCTCCGAAAAGTGCCACCTGACGTCTAAGAAACCATTTATTATCATGACATTA

2100
ACCTATAAAAATAGCGGTATCACGGGGCCCTGAGGTGAACCAATTGTCACACGTAATATTACGACAACACTACCGTGCACAGGCTTTGATAACTCCTTCAG
<R Y F Y A Y * P A R L H V L Q * V Y Y * S L * R A C A K I V G E R
< ORF1 N-TERM [SPLIT]

2200
TAGTATTCACCGAGTGGTACTCCGTTGGTCTGTGTTCCCTCTTCCAAATAAGGCATTCCATTATCATATATACTTCGTACCACGTGTCACACATCATGAGGA
<L I * R T T S R Q D T N R K G F L A N W K D Y V E Y W Q * V D H P
< ORF1 N-TERM [SPLIT]

2300
TTTTTATCCATACTTACTTGGCTTGTTTGGGATATACATCCTAAACGGGACACCGTCCCTCTAAACCAAGTAACCTGTTTCATCTATGGTCAAATGAGCCCC
<N K N W V * K A Q K P Y V D * V S V T R * F W T V T * R H D F S G R
< ORF1 N-TERM [SPLIT]

2400
TGGAGTGTAATTTTGTATGCACTGATGGATAAAGAGATCCCATATTTTCTAACAGGAGTAAATACATCGTTTTCTCGAAGTGTGGCCGTATACTTTIG
<S H L K T H V S P Y L S G M N K * C S Y I C R K R S T H A T Y K Q
< ORF1 N-TERM [SPLIT]

FIG. 2(C1) CONT.

2500 TCATCCATTCTAAGACATCGTATCAAAAAATCCAAACGATCCACAGACTCATACAGAGACGTACACATTGACAAAGATCGATCCAAAGAGGTCACTG
 < * G N * S M T D F F G F R D V S E N C L R V C Q C L D I W L P * R
 < ORF1 N-TERM [SPLIT]

2600 TGGACATGTGGTTATCTTTCTCACTGCTGTGCATTACCAGAAATACCAAGAAAGCATAGATTTCATCTTCATTCTGTCGTCACGAAATGTAGCACCTGTCA
 < H V H P * R K E S S D N G S Y W L F C L N * R * E H * S I Y C R D Y
 < ORF1 N-TERM [SPLIT]

2700 AGATTCGCCGACGTTTCAATGATATCTCAGCATTTGTCCATTTTACAATTTCCGAAATTTATCTCATCAGTAAAAAATAGTTTGAAGCATATAAAGTGGGTCA
 < I G S T E I I D * C K D M K C N A F N D * * Y F I T Q L M F T P *
 < ORF1 N-TERM [SPLIT]

2800 TATATATTGCGGCACATACGCGTCGGACCTCTTTGAGATCTGACAATGTTTCAGTGCAGAGACTCGGCTACCGCTCGTGGACTTTGAAGTTAAATTCAGAT
 < I Y Q P V Y A D S R K S I Q C H E T C L S P * R E H V K F N --(SEQ ID NO:59) --
 < ORF1 N-TERM [SPLIT]

2900 ATAAAGACGCTGAAAAATCATTGATTTTCGCTCTAACATACCACCCTAAAGATTATAAATTTAATGAATTATTAAAAATACGTACAACAATTGCTGTAA
 3000 TCAACAACGCACAGAATCTAGCGCTTAATAAATGTACTAATAACAATGTATCGTGTTTAAATACGCCGGACCAGTGAACAGAGGTGCGTCTGGTGCAAAAC
 3100 TCCTTTACTTTGAACACCAGGGAACCTTCAAGGAGAATTTCCCTCCTCTTCAGCAGAGTCGGTACCCGCGGGGATCCCCCCTGCCCGGTATTATT
 3200 ATTTTTCACACACCACTGGTAATGGTAGCGACCGGCTCAGCTGGAATTTCCGCCGATACTGACGGGCTCCAGGAGTCGTGCGCCACCAATCCCCAT
 < K Q C W V L Q Y H Y R G A S L Q F E A S V S P S W S D D G G I G M
 < LACZ

FIG. 2(C1) CONT.

3300
 ATGGAACCGTCGATATTACGCCAATGTCCTTCTTCCGCGTGCACGAGATGGCGATGGCTGGTTCCATCAGTTGCTGTTGACTGTAGCGGCTGATGTTG
 <H F G D I N L W T G E E A H L L H R H S T E M L Q Q Q S Y R S I N
 < LACZ

3400
 AACTGGAAGTCGCCGCCCACTGGTGTGGGCCATAATTCAATTCCGGCGTCCCGCAGCGCAGACCGTTTTCGCTCGGGAAGACGTACGGGGTATACATGT
 <F Q D G R W Q H P G Y N L E R T G C R L G N E S P F V Y P T Y M D
 < LACZ

3500
 CTGACAAATGGCAGATCCCAGCGGTCAAACAGCGCGCAGTAAGCGGTCCGGGATAGTTTCTTGGGCCCTAATCCGAGCCAGTTTACCCGCTCTGCTAC
 <S L P L D W R D F C A A T L R D P Y N E Q P G L G L W N V R E A V
 < LACZ

3600
 CTGCGCCAGCTGGCAGTTCAGGCCAATCCGCGCCGGATGCGGTGATCGCTCGCCACTTCAACATCAACGGTAATCGCCATTTGACCACCTACCATCAATC
 <Q A L Q C N L G I R A P H P T D S A V E V D V T I A M Q G S G D I
 < LACZ

3700
 CGGTAGGTTTTCCGGCTGATAATAAGGTTTTCCCTGTGCTGCCACGCGTGAGCGGTGCGTAATCAGCACCCGCAATCAGCAAGTGATCTGCCCGTGCACT
 <R Y T K R S I F L T K G Q H Q W A H A T T I L V A D A L T D A T C Q
 < LACZ

3800
 GCAACAACGCTGCTTCGGCCTGGTAATGGCCCCGCCCTTCCAGCGTTCCAGCCAGCGTTAGGGTCAATCGGGTTCGTTCACTTACGCCAATGTCGTT
 <L L A A E A Q Y H G A A K W R E V W A N P D I R T A E S V G I D N
 < LACZ

3900
 ATCCAGCGGTGCACGGTGAAGTATCGCGCAGCGCGGTTCAGCAGTTGTTTTTATCGCCAATCCACATCTGTGAAGAAGCCCTGACTGGCGGTTAAAT
 <D L P A R T F Q D R L P T L L Q K K D G I W M Q S L F G S Q R N F
 < LACZ

FIG. 2(C1) CONT.

4000

TGCCAACGCTTATTACCCAGCTCGATGCAAAATCCATTTCGCTGGTGGTCAGATGCGGATGGCGTGGACCGCGGGGAGCGTCACACTGAGGTTTT
<Q W R K N G L E I C F D M E S T T L H P I A H S A A P L T V S L N E
< LACZ

4100

CCGCCAGACGCCACTGCTGCCAGGCGCTGATGTGCCCCGCTTCTGACCATGCGGTGCGGTTCGGTTGCACTACCGCTACTGTGAGCCAGAGTTGCCCGGC
<A L R W Q Q W A S I H G A E S W A T A N P Q V V R V T L W L Q G A
< LACZ

4200

GCTCTCCGGCTGCGGTAGTTCAGGCAGTTCAACTGTTTACCTTGTGAGCGCACATCCAGAGGCACCTTACCCTTCCAGCGGCTTACCATCCAGC
<S E P Q P L E P L E I L Q K G Q P A V D L P V E G S A L P K G D L
< LACZ

4300

GCCACCATCCAGTGCAGGAGCTCGTTATCGCTATGACGGAACAGGTATTCGCTGGTCACCTCGATGGTTTGCCCGGATAAACGGAACCTGGAATACTGCT
<A V M W H L L E N D S H R F L Y E S T V E I T Q G S L R F Q F F Q Q
< LACZ

4400

GCTGGTGTTTTCCGTCAGCGCTGGATGCGGCTCGGCAAGACCAAGACCAGACCGTTTCATACAGAACTGGCGATCGTTTCGGCGTATCGCCAAAATC
<Q H K A E T L A P H P T R D A F V L G N M C F Q R D N P T D G F D
< LACZ

4500

ACCGCCGTAAGCCGACCGGTTGCCGTTTTCATCATATTTAATCAGCGACTGATCCACCCAGTCCCAGACGAAGCCGCCCTGTAAACGGGGATACTGA
<G G Y A S W P N G N E D Y K I L S Q D V W D W V F G G Q L R P Y Q
< LACZ

4600

CGAAACGCCTGCCAGTATTAGCGAAACCGCCCAAGACTGTTACCCATCGCGTGGCGGTATTTCGCAAGGATCAGCGGGCGGCTCTCTCCAGGTAGCGAAA
<R F A Q W Y K A F G G L S N G M A H A Y E C L I L P R T E G P L S L
< LACZ

FIG. 2(C1) CONT.

4700
 GCCATTTTGTGATGGACCATTTTCGGCACAGCCGGGAAGGGCTGGTCTTTCATCCACCGCGGTACATCGGGCAAATAATATCGGTGGCCGTGGTGTCTGGC
 <W K K I S W K P V A P F P Q D E D V R A Y M P C I I D T A T T D A
 < LACZ

4800
 TCCGCCGCCCTTCATACTGCACCGCGGGGAAGGATCGACAGATTTCATCCAGCGGATACAGCGGTCGTGATTAGCGCCGTGGCCTGATTTCATCCCCAGC
 <G G G E Y Q V P R S P D V S K I W R Y L A D H N A G H G S E N G L
 < LACZ

4900
 GACCAGATGATCACACTCGGGTGATTACGATCCGCTGCACCATTCGCGTTACGGTTACGGTCATCGCCGGTAGCCAGCGCGGATCATTCGGTCAGACGAT
 <S W I I V S P H N R D R Q V M R T V R E S M A P L W R P D D T L R N
 < LACZ

5000
 TCATTGGCACCATCCCGTGGGTTTCAATATTGGCTTCATCCACCACATACAGGCCGTAGCGGTGCACAGCGTGTACCACAGCGGATGGTTCGGATAATG
 <M P V M G H T E I N A E D V V Y L G Y R D C L T Y W L P H N P Y H
 < LACZ

5100
 CGAACAGCGCACGGCGTTAAAGTTGTCTGCTTCATCAGCAGGATATCCTGCACCATCGTCTGCTCATCCATGACCTGACCATGCAGAGGATGATGCTCG
 <S C R V A N F N N Q K M L L I D Q V M T Q E D M V Q G H L P H H E
 < LACZ

5200
 TGACGGTTAACGCCCTCGAATCAGCAACGGCTTGCCGTTTCAGCAGCAGCAGACCATTTTCAATCCGCACCTCGCGGAACCGACATCGCAGGCTTCTGCTT
 <H R N V G R I L L P K G N L L L L L G N E I R V E R F G V D C A E A E
 < LACZ

5300
 CAATCAGCGTCCCGGTGTCAGTTCAACCACCGCAGATAGAGATTTCGGGATTCGGCGCTCCACAGTTTCGGGTTTCGACGTTTCAGACGCTAG
 <I L T G D A T H L E V V A R Y L N P I E A S W L K P N E V N L R L
 < LACZ

FIG. 2(C1) CONT.

5400
TGTGACGCGATCGGCATAACCAACGCTCATCGATAATTTACCGCCGAAAGCGCGGTGCCGCTGGCGACCTGCGTTTCACCCCTGCCATAAAGAAACT
<T V R D A Y G G R E D I I E G G F P A T G S A V Q T E G Q W L S V
< LACZ

5500
GTTACCCGTTAGTCACGCAACTCGCCGCACATCTGAACCTTCAGCCTCCAGTACAGCGCGGTGAAATCATATTAAAGCGAGTGGCAACATGGAAT
<T V R L Y D R L E G C M Q V E A E L V A R S F D D N F R T A V H F D
< LACZ

5600
CGCTGATTTGTAGTCGGTTTATGCAGCAACGAGACGTCACGGAATAATGCCGCTCATCCGCCACATATCCTGATCTTCCAGATAACTGCCGTCACCTCCA
<S I Q T T P K H L L S V D R F I G S M R W M D Q D E L Y S G D S W
< LACZ

5700
ACGCAGCACCATCACCGGAGGCGGTTTCTCCGGCGGTAAAAATGCGCTCAGGTCAAATTCAGACGGCAACGACTGTCTGGCCGTAACCGACCCAG
<R L V M V A L R N E G A R L F A S L D F E S P L R S D Q G Y G V W
< LACZ

5800
CGCCCGTTGCACCACAGATGAACGCCGAGTTAACGCCATCAAAAATAATTCGCGTCTGGCCTTCCTGTAGCCAGCTTTCATCAACATTAAATGTGAGCG
<R G N C W L H F A S N V G D F I I R T Q G E Q L W S E D V N F T L S
< LACZ

5900
AGTAACAACCCGTCGGATTCTCCGTGGGAACAACGGCGGATTGACCGTAATGGGATAGGTTACGTTGGTGTAGATGGGCGCATCGTAACCGTGCATCTG
<Y C G T P N E T P V F P P N V T I P Y T V N T Y I P A D Y G H M Q
< LACZ

FIG. 2(C1) CONT.

6000
CCAGTTTGAGGGGACGACGGGATCCGGTTTTTTATTACAAAACGTTACGAAAACAGTAAATACTATTATTATTCGGACCAACAATGTTTATTCTTA
<V L L T * E *
< ORF1 N-TERM [S

<W N S P V V V P D T K K N C F Q * S F L L I S I * E S W C --(SEQ ID NO:60) --
LACZ

6100
CCTCTAATAGTCTCTGTGGCAAGGTCAAGATTCTGTAGAACCCCAATGAAGAACCTGGTTGTTCAATAACATTTTGTTCGTCTAATAATTTCACTACGCT
<R * Y D E T A L D L N Q * F G I F F R T T * Y C K T R R I N * * A
< ORF1 N-TERM [SPLIT]

6200
TGACGTTGGCTGACACTTCATGTACCTCATCTATAAACGCTTCTTCTGTATCGCTCTGGACGCTCTTCACTTACGTGATCTGATATTTCACCTGTCAGAATC
<Q R Q S V S * T G * R Y V S R R Y R E P R R * K R S R I N * Q * F G
< ORF1 N-TERM [SPLIT]

6300
CTCACCAACAAGCTCGTCATCGCCTTGCAGAAGAGCAGAGAGGATATGCTCATCGTCTAAAGAACATCCCATTTTATTATATATTAGTCACGATATCTAT
<* W C A R * R A S S C L P Y A * R R F F M G X --(SEQ ID NO:61) --
< ORF1 N-TERM [SPLIT]

6400
AACAGAATAATATATATAATAAGTTATCACGTAAGTAGAACATGAATAACAATATTAATTATCGTATGAGTTAAATCTTAAAAGTCACGTAAAAGAT

6500
AATCATGCGTCATTTTGACTCACGGCGTTCGTTATAGTTCAAAATCAGTGACACTTACCGCATTGACAAGCACGCCCTCAGCCGAGCTCCAAGCGGCGACTG

6600
AGATGTCCTAAATTGCCAAACAGCGGATTTCGGCGCTATTATTAGAAAGAGAGAGCAATATTTCAAGAAATGCATGCGTCAATTTTACGCAGACTATCTTTCT

____ RIGHT TERMINAL REPEAT ____ >

FIG. 2(C1) CONT.


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6700
AGGGTTAATCTAGAGGATCCTCTAGATTAAACCCTAGAAAGATAATCATATTGTGACGTACGTTAAAGATAATCATGCGTAAATAATTGACGCATGTGTTTTT
>
_____ LEFT TERMINAL REPEAT _____ >

6800
ATCGGCTGTATATCGAGGTTTATTTATTAAATTGAATAGATATTAAAGTTTTATTATATTACACTTACATATAATAATAATTCAACAACAATTTAT

6900
TTATGTTTATTATTATTAATAAAACAAAACTCAAAATTTCTCTAAAGTAACAAACTTTTAAACATTCTCTCTTTTACAAAATAAACTTATTT

7000
TGTACTTTAAACACAGTCATGTTGTATTATAAAATAAGTAATTAGCTTAACTTATACATAATAGAAACAAATTATACTTATTAGTCAGTCCAGAAACAAC
<D T W F C S
< ORF1 C-TER _____

7100
TTTGGCACATATCAATATTATGCTCTCGACAAATAAATTTTGGCATTTTTCACGATGCAATTTGCGCTTTTTCGGCTTATTTTAGAGGGGCAGTAAGTACA
<Q C M D I N H E R C I V K K C K K C S A N A K R R I K S P C Y T C
< ORF1 C-TERM _____

7200
GTAAGTACGTTTTTTCATTACTGGCTCTTCAGTACTGTCTCATCTGATGTACCAGGCACCTTCATTTGGCAAAATATTAGAGATATTATCGCGCAAAATATCTC
<Y T R K K M V P E E T S D D S T G P V E N P L I N S I N D R L Y R
< ORF1 C-TERM _____

7300
TTCAAAGTAGGAGCTTCTAAACGGTTACGCATAAACGATGACGTGAGGCTCATGTAAGGTTTCTCATAAATTTTTCGACCTTTGAACCTTTTCTCCCT
<K L T P A E L R N R M F S S T L S M Y L N R M F K K R S Q V K E G K
< ORF1 C-TERM _____

```

FIG. 2(C1) CONT.

7400
TGCTACTGACATTATGGCTGTATATAATAAAGAATTATGCAGGCAATGTTTATCATTCCTGTAACAATAATGCCATAGGCCACCTATTCTGCTTCCCTACT
<S S V N H S Y I I F S N I C A I N I M G Y L L A M P W R N T K R S
< ORF1 C-TERM

7500
GCAGGTCATCACAGAACACATTGGGCTCTAGCGGTGCCACTCCGCCCTTTAGTTTGATTATAATACATAACCATTTGCCGGTTTACCGGTACTTTTCGTTGATA
<C T M V S C M Q D L T D V G G K T Q N Y Y M V M Q P K G T S E N I
< ORF1 C-TERM

7600
GAAGCATCCTCATCACAGAATGATAAATAAGTATACCATCTTAGCTGGCTTCGGTTTATATGAGACGAGAGTAAGGGGTCCGTCAAACAAACATCGATG
<S A D E D C S S L L Y V M K A P K P K Y S V L T L P G D F C F M S T
< ORF1 C-TERM

TTCCCACTGGCCCTGGAGCGACTGTTTTTCAGTACTTCCGGTATCTCGCGTTTGTTCGTCGCACGGTACC ---(SEQ ID NO:57) ---
<G V P R S R S N K L V E P I E R K N S R V T G ---(SEQ ID NO:62) ---
< ORF1 C-TERM

FIG. 2(C1) CONT.

pIAO-P/L-Lambda-2.2kb

Sequence Range: 1 to 9984

```
100 AACGGCGGGGAGAGCGGTTTGGCGTATTGGCGCTCTTCCGCTTCCTCGCTCACTGACTCGCTCGCTCGGTGTTGCGCTGCGGCGAGCGGTATCAGC
200 TCACTCAAAGGCGGTAATACGGTTATCCACAGAAATCAGGGGATAACGCAGGAAGAACAATGTAGCAAAAGGCCAGCAAAAGGCCAGGAACCGTAAAAG
   >ori
   |
   |
300 GCCGCGTTGCTGGCGTTTTTCCATAGGCTCCGCCCCCCCTGACGAGCATCACAAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAA
400 GATACCAGGCGTTTCCCCCTGGAAGCTCCCCTCGTGGCTCTCCTGTTCCGACCCCTGCCGCTTACCGGATACCTGTCCGCCCTTCTCCCTTCGGGAAAGCGT
500 GGCGCTTCTCAATGCTCACGCTGTAGGTATCTCAGTTCGGTGTAGGTGCTCGTCCAAAGCTGGGCTGTGTGCACGAACCCCCCGTTTCAGCCCCGACCCG
600 TCGCCCTTATCCGGTAACTATCGTCTTGAGTCCAACCCGGTAAGACACGACTTATCGCCCACTGGCAGCAGCCCACTGGTAACAGGATTAGCAGAGCGAGGT
700 ATGTAGCGGTGCTACAGAGTTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGGACAGTATTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTT
800 CGGAAAAGAGTTGGTAGCTCTTGATCCGGCAACAACCAACCGCTGGTAGCGGTGGTTTTTTTGTTTGCAAGCAGCAGATTACGCCGAGAAAAAAGGA
900 TCTCAAGAAAGATCCTTTGATCTTTTCTACGGGGTCTGACGCTCAGTGGAAACGAAAACCTCACGTTAAGGGATTTTGGTCATGAGATTATCAAAAAGGATCT
```

FIG. 2(C2)

1000 TCACCTAGATCCTTTTAAATTAATAATGAAGTTTAAATCAATCTAAAGTATATAGAGTAAACTTGGTCTGACAGTTACCAATGCTTAATCAGTGAGGC
 <W H K I L S A
 < AMP RESIST

1100 ACCTATCTCAGCGATCTGTCTATTTTCGTTTCATCCATAGTTGCCCTGACTCCCGTCGTGTAGATAACTACGATACGGGAGGGCTTACCATCTGGCCCCCAGT
 <G I E A I Q R N R E D M T A Q S G T T Y I V I R S P K G D P G L
 < AMP RESIST

1200 GCTGCAATGATACCGGAGACCCACGCTCACCGGCTCCAGATTATCAGCAATAAACCCAGCCGGAAGGCCGAGCGCAGAAAGTGGTCTCTGCAACTT
 <A A I I G R S G R E G A G S K D A I F W G A P L A S R L L P G A V K
 < AMP RESIST

1300 TATCCGGCTCCAGTCTATTAATTGTTGCCGGGAAGCTAGAGTAAGTAGTTGCCAGTTAATAGTTTTCGCAACGTTGTTGCCATTGCTACAGGCAT
 <D A E M W D I L Q Q R S A L T L E G T L L K R L T T A M A V P M
 < AMP RESIST

1400 CGTGGTGCACGCTCGTTCGTTGGTATGGCTTCATTACGCTCCGGTTCCCAACGATCAAGGCGAGTTACATGATCCCCCATGTTGTGCAAAAAGCGGTT
 <T T D R E D N P I A E N L E P E W R D L R T V H D G M N H L F A T
 < AMP RESIST

1500 AGCTCCTTCGGTCCCGATCGTTGTCAGAAGTAAGTTGGCCGCGAGTGTATCACTCATGTTATGGCAGCACTGCATAATTCTTACTGTCTATGCCAT
 <L E K P G G I T T L L L N A A T N D S M T I A A S C L E R V T M G D
 < AMP RESIST

1600 CCGTAAGATGCTTTTCTGTGACTGGTGAGTACTCAACCAAGTCATTCTGAGAATAGTGATGCGGCGACCGAGTTGCTCTTGGCCCGCGTCAATACGGGA
 <T L H K E T V P S Y E V L D N Q S Y H I R R G L Q E Q G A D I R S
 < AMP RESIST

FIG. 2(C2) CONT.

1700
TAATACCGCGGCACATAGCAGAACTTTAAAGTGCTCATCATTTGGAACGTTCTTCGGGGCGAAACTCTCAAGGATCTTACCGCTGTTGAGATCCAGT
<L V A G C L L V K F T S M M P F R E E P R F S E L I K G S N L D L
< AMP RESIST

1800
TCGATGTAACCCACTCGTGCACCCCACTGATCTTTCAGCATCTTTTACTTTCACCAGCGTTTCTGGGTGAGCAAAAACAGGAAGGCAAAATGCCGCAAAAA
<E I Y G V R A G L Q D E A D K V K V L T E P H A F V P L C F A A F F
< AMP RESIST

1900
AGGGAATAAGGCGCACACGGAATGTTGAATACTCACTCTTCCCTTTTCAATATTATGAAGCATTTATCAGGGTTATTGTCTCATGAGCGGATACAT
<P I L A V R F H Q I S M --(SEQ ID NO:58)--
< AMP RESIST

2000
ATTGAATGTATTTAGAAAAATAAACAAATAGGGTTCCGGCGACATTTCCCCGAAAAGTGCCACCCTGACGCTCTAAGAAACCATTTATTATCATGACATTA

2100
ACCTATAAAAATAGGCGTATCACGGGCGCCCTGAGGTGAACCAATTGTACACACGTAATATTACGACAACCTACCGTGACAGGCTTTGATAACTCCTTCACG
<R Y F Y A Y * P A R L H V L Q * V Y Y * S L * R A C A K I V G E R
< ORF1 N-TERM [SPLIT]

2200
TAGTATTCACCGAGTGGTACTCCGTTGGTCTGTGTTCCCTCTTCCAAATAAGGCATTCCTATTATCATATACTTCGTACCACCTGTCACACATCATGAGGA
<L I * R T T S R Q D T N R K G F L A N W K D Y V E Y W Q * V D H P
< ORF1 N-TERM [SPLIT]

2300
TTTTTATTCCATACTTACTTGGCTTGTTTGGGATATACATCTCTAAACGGACACCGTCCCTCTAAACCAAGTAACCTGTTTCATCTATGGTCAAATGAGCCCC
<N K N W V * K A Q K P Y V D * V S V T R * F W T V T * R H D F S G R
< ORF1 N-TERM [SPLIT]

FIG. 2(C2) CONT.

2400
 TGGAGTGTAAATTTGTATGCACTGATGGATAAAGAGATCCCATATTTTCTAACAGGAGTAAATACATCGTTTCTCGAAGTGTGGGCCGTATACTTTTG
 <S H L K T H V S P Y L S G M N K * C S Y I C R K R S T H A T Y K Q
 < ORF1 N-TERM [SPLIT]

2500
 TCATCCATTCTAAGACATCGTATCAAAAAATCCAAAACGATCCACAGACTCATTCAGAGACGTACACATTCACAAAGATCGATCCAAAAGAGGTCAATCTG
 <* G N * S M T D F F G F R D V S E N C L R V C Q C L D I W L P * R
 < ORF1 N-TERM [SPLIT]

2600
 TGGACATGTGGTTATCTTTCTCACTGCTGTCTATTACCAGAATACCAAAGAAAGCATAGATTTCATCTTCATTCGTGTCACGAAATGTAGCACCTGTCTAT
 <H V H P * R K E S S D N G S Y W L F C L N * R * E H * S I Y C R D Y
 < ORF1 N-TERM [SPLIT]

2700
 AGATTCCCGACGTTTCAATGATATCTCAGCATTTGTCCATTTTACAATTTGCGAAATTATCTCATCAGTAAAAAATAGTTTGAAGCATAAAAAGTGGGTCA
 <I G S T E I I D * C K D M K C N A F N D * * Y F I T Q L M F T P *
 < ORF1 N-TERM [SPLIT]

2800
 TATATATTGCGGCACATACGCGTCGGACCTCTTTGAGATCTGACAATGTTTCAGTGCAGAGACTCGGCTACCGCTCGTGGACTTTGAAGTTAAATTCAGAT
 <I Y Q P V Y A D S R K S I Q C H E T C L S P * R E H V K F N --(SEQ ID NO:59) --
 < ORF1 N-TERM [SPLIT]

2900
 ATAAAGACGCTGAAAAATCATTTGATTTTCGCTCTAACATACCACCCTAAAGATTATAAATTTAATGAATTATTAAATACGTACAACAATTGTCTGTAAA

3000
 TCAACAACGCACAGAATCTAGCGCTTAATAAATGTACTAATAACAATGTATCGTGTTTTAATACGCCCGGACCAGTGAACAGAGGTGCGTCTGGTGCAAC

3100
 TCCTTTACTTTGAACACCAGGGAACCTCAAGGAGAAATTTCCCTCCTCTTCAGCAGAGTCGGTACCCCGGGGATCCCCCTGCCCGGTATTATT

FIG. 2(C2) CONT.

3200
 ATTTTGTACACCACTGGTAATGGTAGCGACCGGCGCTCAGCTGGAATTCCGCCGATACTGACGGGCTCCAGGAGTCGTGCGCCACCAATCCCCAT
 <K Q C W V L Q Y H Y R G A S L Q F E A S V S P S W S D D G G I G M
 < LACZ

3300
 ATGGAACCGTCGATATTCAGCCCATGTGCCTTCTCCGCGTGCAGCAGATGGCGATGGCTGGTTCCATCAGTTGCTGTTGACTGTAGCGGTGATGTTG
 <H F G D I N L W T G E E A H L L H R H S T E M L Q Q S Y R S I N
 < LACZ

3400
 AACTGGAAGTCGCCCGCCACTGGTGTGGCCATAATTCAATTCCGGCGTCCCAGCGCAGACCGGTTTCGCTCGGGAAGACGTACGGGGTATACATGT
 <F Q F D G R W Q H P G Y N L E R T G C R L G N E S P F V Y P T Y M D
 < LACZ

3500
 CTGACAATGGCAGATCCAGCGGTCAAACAGGCGGAGTAAGGCGTGGGATAGTTTCTTGGGGCCCTAATCCGAGCCAGTTTACCGCTCTGCTAC
 <S L P L D W R D F C A A T L R D P Y N E Q P G L G L W N V R E A V
 < LACZ

3600
 CTGCGCCAGCTGGCAGTTCAGGCCAATCCGCGCGGATGCGGTGATCGCTCGCCACTTCAACATCAACGGTAATCGCCATTTGACCACTACCATCAATC
 <Q A L Q C N L G I R A P H P T D S A V E V D V T I A M Q G S G D I
 < LACZ

3700
 CGGTAGGTTTCCGGCTGATAAATAAGGTTTCCCCCTGATGCTGCCACGCGTGAGCGGTTCGTAATCAGCACCGCATCAGCAAGTGTATCTGCCGTGCACT
 <R Y T K R S I F L T K G Q H Q W A H A T T I L V A D A L T D A T C Q
 < LACZ

3800
 GCAACAACGCTGCTCGGCCTGGTAATGGCCCGCCGCTTCCAGCGTTCCAGCCAGCGGTAGGGTCAATCGGGTCGCTTCACTTACGCCAATGTCGTT
 <L L A A E A Q Y H G A A K W R E V W A N P D I R T A E S V G I D N
 < LACZ

FIG. 2(C2) CONT.

3900
 ATCCAGCGGTGCACGGGTGAACCTGATCGCGCGGTACGAGTGTGTTTATCGCCAATCCACATCTGTGAAAGAAAGCCTGACTGGCGGTAAAT
 <D L P A R T F Q D R L P T L L Q K K D G I W M Q S L F G S Q R N F
 < LACZ

4000
 TGCCAACGCTTATTACCCAGCTCGATGCAAAAATCCATTTCGCTGGTGGTCAGATGCGGGATGGCGTGGGACGCGGGGAGCGTCACACTGAGGTTTT
 <Q W R K N G L E I C F D M E S T T L H P I A H S A A P L T V S L N E
 < LACZ

4100
 CCGCCAGACGCCACTGCTGCCAGGCGTGATGTGCCCCGCTTCTGACCATGCGGTTCGGTTGCACTACGCGTACTGTGAGCCAGAGTTGCCCGGC
 <A L R W Q Q W A S I H G A E S W A T A N P Q V V R V T L W L Q G A
 < LACZ

4200
 GCTCTCCGGTCCGGTAGTTCAGGCAGTTCAATCAACTGTTACCTGTGGAGCGACATCCAGAGGCACCTTACCCTTCCAGCGGCTTACCATCCAGC
 <S E P Q P L E P L E I L Q K G Q P A V D L P V E G S A L P K G D L
 < LACZ

4300
 GCCACCATCCAGTGCAGGAGCTCGTTATCGCTATGACGGAACAGGTATTCCGCTGGTCACCTTCGATGGTTTCCCGGATAAACGGAACTGGAAAAAAGTCT
 <A V M W H L L E N D S H R F L Y E S T V E I T Q G S L R F Q F F Q Q
 < LACZ

4400
 GCTGGTGTGTTGCTTCCGTACGCGCTGGATGCGGCGTGGTCCGGAAGACCAAGACCGCTTCATACAGAACTGGCGATCGTTCCGGGTATCGCCAAAATC
 <Q H K A E T L A P H P T R D A F V L G N M C F Q R D N P T D G F D
 < LACZ

4500
 ACCGCCGTAAGCCGACCGGTTGCCGTTTTCATCATATTAAATCAGCGACTGATCCACCCAGTCCAGACGAAGCCGCCCTGTAAACGGGGATCTGA
 <G G Y A S W P N G N E D Y K I L S Q D V W D W V F G G Q L R P Y Q
 < LACZ

FIG. 2(C2) CONT.

4600 CGAAACGCCTGCCAGTATTTAGCGAAACCGCAAGACTGTTACCCATCGCGTGGCGGTATTCCGAAAGGATCAGCGGGCGCGTCTCTCCAGGTAGCGAAA
 <R F A Q W Y K A F G G L S N G M A H A Y E C L I L P R T E G P L S L
 < LACZ

4700 GCCATTTTGTGATGGACCATTTTCGGCACAGCCGGGAAGGCTGGTCTTTCATCCACGCGCGGTACATCGGGCAATAATATCGGTGGCCGTGGTGTCCGGC
 <W K K I S W K P V A P F P Q D E D V R A Y M P C I I D T A T T D A
 < LACZ

4800 TCCGCCGCCTTCATAC TGCACCGCGGGAAGGATTCGACAGATTGTATCCAGCGGTACAGCGCGTTCGTGATTAGCGCCGTGGCCTGATTTCATTCCTCCAGC
 <G G E Y Q V P R S P D V S K I W R Y L A D H N A G H G S E N G L
 < LACZ

4900 GACCAGATGATCACACTCGGGTGATTACGATCGCGGTGCACCATTCGCGTTACGCGTTACGCGGTAGCCCGGTAGCCAGCGCGGATCATCGGTCAGACGAT
 <S W I I V S P H N R D R Q V M R T V R E S M A P L W R P D D T L R N
 < LACZ

5000 TCATTGGCACCATGCCGTGGGTTCAATATTGGCTTCATCCACCACATACAGGCCGTAGCGGTGCGACAGCGGTGTACCACAGCGGATGGTTCGGATAATG
 <M P V M G H T E I N A E D V V Y L G Y R D C L T Y W L P H N P Y H
 < LACZ

5100 CGAACAGCGCACGGCGTTAAAGTTGTTCTGCTTCATCAGCAGGATATCCTGCACCATCGTCTGCTCATCCATGACCTGACCATGCAGAGGATGATGCTCG
 <S C R V A N F N N Q K M L L I D Q V M T Q E D M V Q G H L P H H E
 < LACZ

5200 TGACGGTTAACCCCTCGAATCAGCAACGGCTTGCCGTTTCAGCAGCAGCAGACCATTTTCAATCCGCACCTCGCGGAACCGACATCGCAGGCTTCTGCTT
 <H R N V G R I L L P K G N L L L L L G N E I R V E R F G V D C A E A E
 < LACZ

FIG. 2(C2) CONT.

5300
CAATCAGCGTCCCGTGGCGGTGTCAGTTCAACCACCGCAGATAGAGATTCGGGATTTCCGCGCTCCACAGTTTCGGGTTTTCGACGTTTCAGACGTAG
<I L T G D A T H L E V A R Y L N P I E A S W L K P N E V N L R L
< LACZ

5400
TGTACGGGATCGGCATAACCACCGCTCATCGATAATTTCACCGCCGAAAGCGCGGTGCGGACCTGCGTTTCACCCCTGCCATAAAGAAACT
<T V R D A Y G G R E D I I E G G F P A T G S A V Q T E G Q W L S V
< LACZ

5500
GTTACCGGTAGTCACGCAACTCGCCGCACATCTGAACCTCAGCTCCAGTACAGCGCGGTGAAATCATCATTTAAAGCGAGTGGCAACATGGAAAT
<T V R L Y D R L E G C M Q V E A E L V A R S F D D N F R T A V H F D
< LACZ

5600
CGCTGATTTGTAGTCGGTTTATGCAGCAACGAGACGTCACGGAAATGCCGCTCATCCGCCACATATCCTGATCTTCCAGATAACTGCCGTCACCTCCA
<S I Q T T P K H L L S V D R F I G S M R W M D Q D E L Y S G D S W
< LACZ

5700
ACGACGACCATCACCGGAGGCGGTTTCTCCGGCGGTAAATGCGCTCAGGTCAAATTCAGACGGCAAACGACTGTCCTGGCCGTAACCGACCCAG
<R L V M V A L R N E G A R L F A S L D F E S P L R S D Q G Y G V W
< LACZ

5800
CGCCCGTTGCACCACAGATGAAACCGCGAGTTAACGCCATCAAAAATAATTCGGCTCTGGCCTTCCTGTAGCCAGCTTTCATCAACATTAAATGTGAGCG
<R G N C W L H F A S N V G D F I I R T Q G E Q L W S E D V N F T L S
< LACZ

5900
AGTAACAACCCGTCGGATTCTCCGTGGGAACAACCGCGGATTGACCGTAATGGATAGGTTACGTTGGTGTAGATGGGCGCATCGTAACCGTGCATCTG
<Y C G T P N E T P V F P P N V T I P Y T V N T Y I P A D Y G H M Q
< LACZ

FIG. 2(C2) CONT.

6000
CCAGTTTGAGGGGACGACGCGGATCCGTTTTTATTACAAAACCTGTACGAAACAGTAAATACTTATTTCGGACCACAATGTTTATCTTA
<V L L T * E *
< ORF1 N-TERM [S

<W N S P V V V P D T K K N C F Q * S F L L I S I * E S W C --(SEQ ID NO:60)---
LACZ

6100
CCTCTAATAGTCCTCTGTGGCAAGGTC AAGATTCTGTAGAAGCCAATGAAGAACCTGGTTGTTCAATAACATTTTGGTTCGTCTAAATATTTCACTACGCT
<R * Y D E T A L D L N Q * F G I F R T T * Y C K T R R I N * * A
ORF1 N-TERM [SPLIT]

6200
TGACGTTGGCTGACACTTCATGTACCTCATCTATAAACGCCTTCTTCTGTATCGCTCTGGACGCTCTTCACTTAGTGATCTGATATTTCACCTGTCAGAATC
<Q R Q S V S * T G * R Y V S R R Y R E P R R * K R S R I N * Q * F G
ORF1 N-TERM [SPLIT]

6300
CTCACCAAACAGCTCGTCATCGCCTTGCAGAAGAGCAGAGGATATGCTCATCGTCTAAAGAACATCCCATTATTATATATATTAGTCACGATATCTAT
<* W C A R * R R A S S C L P Y A * R R F F M G X --(SEQ ID NO:61)---
ORF1 N-TERM [SPLIT]

6400
AACAAGAAAAATATATATAATAAGTTATCACGTAAGTAGAACATGAATAACAATATTAATTATCGTATGAGTTAAATCTTAAAGTCACGTAAGAAT

6500
AATCATCGGTCAATTTGACTCACGGGTGCTTATAGTTCAAAATCAGTGACACTTACCGCATTTGACAAGCAGCGCTCAGCGGAGCTCCAAGCGGCGACTG

6600
AGATGTCCTAAATTGCAACAGCGGATTCGGCGCTATTTAGAAAAGAGAGAGCAATATTTCAAGAATGCATCGCTCAATTTACGCAGACTATCTTTCT
RIGHT TERMINAL REPEAT >

FIG. 2(C2) CONT.

6700

AGGTTAATCTAGCTTTCTAATTAACTTTGTTCAGGTTACCAACTACTAAGTGTAGGCTCAAGAGGGTGTGCTCCTGTCGTAGGTAATAACTGACC
<K R I * G K D P * W S S L N Y A * S P T D Q R L Y I V S R
<EA31 (296); CODON START=1; DB XREF=PID:G215131; TRA [SPLIT]
<MRNA-PL (ALT.; VIA T'J4 TERMINATOR) [SPLIT]
<MRNA-PL (ALT.; VIA T'J3 TERMINATOR) [SPLIT]
<MRNA-PL (ALT.; VIA T'J2 TERMINATOR) [SPLIT]
<MRNA-PL (ALT.; VIA T'J1 TERMINATOR) [SPLIT]
>

6800

TGTCGAGCTTAATCTATATGTTGTTCTTCTGCAAAAAGTGGGAAGTGAGTAATGAAATTATTCTAACATTATCTGCATCATACCTTCCGAG
<D L K I N * I T T R E A F F H P L S Y H F * K * C K D A D Y R G L
<EA31 (296); CODON START=1; DB XREF=PID:G215131; TRA [SPLIT]
<MRNA-PL (ALT.; VIA T'J4 TERMINATOR) [SPLIT]
<MRNA-PL (ALT.; VIA T'J3 TERMINATOR) [SPLIT]
<MRNA-PL (ALT.; VIA T'J2 TERMINATOR) [SPLIT]
<MRNA-PL (ALT.; VIA T'J1 TERMINATOR) [SPLIT]

6900

CATTTATTAAGCATTTTCGCTATAAGTTCTCGCTGGAAGGAGTAGTTTTTTCATTGTACTTTACCTTCATCTCTGTTTCATTATCATCGCTTTTAAACGGT
<M * * A N R * --(SEQ ID NO:64) --
<EA31 (296); CO
<S Y T R A P L P L K K M T S * R * R Q EN D D S K F R N
<EA59 (525); CODON START=1; DB XREF=PID:G215132; TRA
<MRNA-PL (ALT.; VIA T'J4 TERMINATOR) [SPLIT]
<MRNA-PL (ALT.; VIA T'J3 TERMINATOR) [SPLIT]
<MRNA-PL (ALT.; VIA T'J2 TERMINATOR) [SPLIT]
<MRNA-PL (ALT.; VIA T'J1 TERMINATOR) [SPLIT]

FIG. 2(C2) CONT.

7000

TCGACCTTCTAATCCTATCTGACCATTAATAATTTTGTAGAAATGGTTTCATAAGAAAGCTCTGAATCAACGGACTGCGATAATAAGTGGTGGTATCCAGAA
<S R R I R D S W * L K K S H N * L F A R F * R V A I I L P P I W F
<EA59 (525); CODON START=1; DB XREF=PID:G215132; TRA
<MRNA-PL (ALT.; VIA T'J4 TERMINATOR) [SPLIT]
<MRNA-PL (ALT.; VIA T'J3 TERMINATOR) [SPLIT]
<MRNA-PL (ALT.; VIA T'J2 TERMINATOR) [SPLIT]
<MRNA-PL (ALT.; VIA T'J1 TERMINATOR) [SPLIT]

7100

TTTGTCACTTCAAGTAAAAACACCTCACGAGTTAAACACCTAAGTCTCACCGAATGTCTCAATATCCGGACGGATAATATTATTGCTTCTCTTGACC
<K D S * T F V G * S N F C R L E * R I D * Y G S P Y Y K N S R K V
<EA59 (525); CODON START=1; DB XREF=PID:G215132; TRA
<MRNA-PL (ALT.; VIA T'J4 TERMINATOR) [SPLIT]
<MRNA-PL (ALT.; VIA T'J3 TERMINATOR) [SPLIT]
<MRNA-PL (ALT.; VIA T'J2 TERMINATOR) [SPLIT]
<MRNA-PL (ALT.; VIA T'J1 TERMINATOR) [SPLIT]

7200

GTAGGACTTTCACATGCAGGATTTTGGAACCTCTTGCAGTACTACTGGGGAATGAGTTGCAATTATTGCTACACCATTCGGTGCATCGAGTAAGTCGCT
<T P S E V H L I K S G R A T S S P F S N C N N S C W Q T C R T L R K
<EA59 (525); CODON START=1; DB XREF=PID:G215132; TRA
<MRNA-PL (ALT.; VIA T'J4 TERMINATOR) [SPLIT]
<MRNA-PL (ALT.; VIA T'J3 TERMINATOR) [SPLIT]
<MRNA-PL (ALT.; VIA T'J2 TERMINATOR) [SPLIT]
<MRNA-PL (ALT.; VIA T'J1 TERMINATOR) [SPLIT]

FIG. 2(C2) CONT.

7300

TAATGTTCTGTAATAAAGCAGAGCAAGGTGGATGCAGATGAACCTCTGGTTCATCGAATAAAACTAATGACTTTTCGCCAACGACATCTACTAATCTT
 <I N T F F C L A F T S A S S G R T * R I F S I V K R W R C R S I K
 <EA59 (525); CODON START=1; DB XREF=PID:G215132; TRA
 <MRNA-PL (ALT.; VIA T'J4 TERMINATOR) [SPLIT]
 <MRNA-PL (ALT.; VIA T'J3 TERMINATOR) [SPLIT]
 <MRNA-PL (ALT.; VIA T'J2 TERMINATOR) [SPLIT]
 <MRNA-PL (ALT.; VIA T'J1 TERMINATOR) [SPLIT]

7400

GTGATAGTAAATAAACAATTGCAATGTCAGAGCTCATTCGAAGCAGATATTTCTGGATATTGTCAATAAACAAATTAGTGAATTTATCATCGTCCACTT
 <H Y Y I F C N C T W L E N S A S I E P Y Q * L V I * H I * * R G S
 <EA59 (525); CODON START=1; DB XREF=PID:G215132; TRA
 <MRNA-PL (ALT.; VIA T'J4 TERMINATOR) [SPLIT]
 <MRNA-PL (ALT.; VIA T'J3 TERMINATOR) [SPLIT]
 <MRNA-PL (ALT.; VIA T'J2 TERMINATOR) [SPLIT]
 <MRNA-PL (ALT.; VIA T'J1 TERMINATOR) [SPLIT]

7500

GAATCTGTGGTTCATTACGTCCTTAACCTTCATATTTAGAAAATGAGGCTGATGAGTCCATATTTGAAAAGTTTTCATCACACTACTAGTTTITGATAGC
 <S D T T * * T K V R * I * F H P Q H T G Y K F L K * * * K T K Q Y S
 <EA59 (525); CODON START=1; DB XREF=PID:G215132; TRA
 <MRNA-PL (ALT.; VIA T'J4 TERMINATOR) [SPLIT]
 <MRNA-PL (ALT.; VIA T'J3 TERMINATOR) [SPLIT]
 <MRNA-PL (ALT.; VIA T'J2 TERMINATOR) [SPLIT]
 <MRNA-PL (ALT.; VIA T'J1 TERMINATOR) [SPLIT]

FIG. 2(C2) CONT.

7600

TTCAAGCCAGAGTTGTCTTTTCTATCTACTCTCATACAACCAATAAATGCTGAAATGAATTTCTAAGCGGAGATCGCCTAGTGAITTTTAAACTATTGCTG
<* A L T T K K * R S E Y L W Y I S F H I R L P S R R T I K F * Q Q
< EA59 (525); CODON START=1; DB XREF=PID:G215132; TRA
< MRNA-PL (ALT.; VIA T'J4 TERMINATOR) [SPLIT]
< MRNA-PL (ALT.; VIA T'J3 TERMINATOR) [SPLIT]
< MRNA-PL (ALT.; VIA T'J2 TERMINATOR) [SPLIT]
< MRNA-PL (ALT.; VIA T'J1 TERMINATOR) [SPLIT]

7700

GCAGCATTTCTGAGTCCAATATAAAAGTATTGTGTACCTTTTCTGGGTCAGGTTGTTCTTTAGGAGGAGTAAAGGATCAAATGCACTAAACGAAACTG
< C C E Q T W Y L L I T Y R K S P * T T R * S S Y F S * I C * V F S
< EA59 (525); CODON START=1; DB XREF=PID:G215132; TRA
< MRNA-PL (ALT.; VIA T'J4 TERMINATOR) [SPLIT]
< MRNA-PL (ALT.; VIA T'J3 TERMINATOR) [SPLIT]
< MRNA-PL (ALT.; VIA T'J2 TERMINATOR) [SPLIT]
< MRNA-PL (ALT.; VIA T'J1 TERMINATOR) [SPLIT]

7800

AAACAAGCGATCGAAATATCCCTTTGGGATTCTTGACTCGATAAGTCTATTATTTTCAGAGAAAAATATTCATTGTTTCTGGGTGGTGGTGCACC
< F C A I S F I G K P N K V R Y T * * K * L F F I * Q K R P Q H N C W
< EA59 (525); CODON START=1; DB XREF=PID:G215132; TRA
< MRNA-PL (ALT.; VIA T'J4 TERMINATOR) [SPLIT]
< MRNA-PL (ALT.; VIA T'J3 TERMINATOR) [SPLIT]
< MRNA-PL (ALT.; VIA T'J2 TERMINATOR) [SPLIT]
< MRNA-PL (ALT.; VIA T'J1 TERMINATOR) [SPLIT]

FIG. 2(C2) CONT.

7900

AATCATTCATTCAAAATTGTTGTTTACCACACCCCATTCGCCCGGATAAAGCATGAATGTTCTGCTGGCATAGAAATTAACCGTCACCTCAAAGGT
<D N W E F N N N * W V W E A R Y F C S H E H Q A Y F * G D G * F T
<EA59 (525); CODON START=1; DB XREF=PID:G215132; TRA
<MRNA-PL (ALT.; VIA T'J4 TERMINATOR) [SPLIT]
<MRNA-PL (ALT.; VIA T'J3 TERMINATOR) [SPLIT]
<MRNA-PL (ALT.; VIA T'J2 TERMINATOR) [SPLIT]
<MRNA-PL (ALT.; VIA T'J1 TERMINATOR) [SPLIT]

8000

ATAGTTAAATCACTGAATCCGGGAGCACCTTTTCTATTAAATGAAAAGTGGAATCTGACAATTCTGGCAAACCATTTAACACACGTCGGAACCTGTCCAT
<Y N F * Q I R S C K K * * I F L P F R V I R A F W K V C T R V T W
<EA59 (525); CODON START=1; DB XREF=PID:G215132; TRA
<MRNA-PL (ALT.; VIA T'J4 TERMINATOR) [SPLIT]
<MRNA-PL (ALT.; VIA T'J3 TERMINATOR) [SPLIT]
<MRNA-PL (ALT.; VIA T'J2 TERMINATOR) [SPLIT]
<MRNA-PL (ALT.; VIA T'J1 TERMINATOR) [SPLIT]

8100

GAATTTCTGAAAGAGTTACCCCTCTAAGTAATGAGGTGTTAAGGACGCTTTCATTTTCAATGTCGGCTAATCGATTGGCCATACTACTAAATCCTGAAT
<S N R F S N G R * T I L H * P R K * K * H R S I S K A M S S F G S Y
<EA59 (525); CODON START=1; DB XREF=PID:G215132; TRA
<MRNA-PL (ALT.; VIA T'J4 TERMINATOR) [SPLIT]
<MRNA-PL (ALT.; VIA T'J3 TERMINATOR) [SPLIT]
<MRNA-PL (ALT.; VIA T'J2 TERMINATOR) [SPLIT]
<MRNA-PL (ALT.; VIA T'J1 TERMINATOR) [SPLIT]

FIG. 2(C2) CONT.

8200

AGCTTTAAGAAGGTTATGTTTAAACCATCGCTTAATTGCTGAGATTAAACATAGTAGTCAATGCTTTCACCTAAGGAAAAACATTTCAGGAGTTGA
<S * S P * T * F W R K I Q Q S * C L L * H K * R L F F V N * P T S
<EA59 (525); CODON START=1; DB XREF=PID:G215132; TRA
<MRNA-PL (ALT.; VIA T'J4 TERMINATOR) [SPLIT]
<MRNA-PL (ALT.; VIA T'J3 TERMINATOR) [SPLIT]
<MRNA-PL (ALT.; VIA T'J2 TERMINATOR) [SPLIT]
<MRNA-PL (ALT.; VIA T'J1 TERMINATOR) [SPLIT]

8300

CTGAATTTTATCTATTAATGAATAAGTGCCTTACTTCTTCTTTTGACCTACAAACCAATTTTAACATTTCCGATATCGCATTTTTCACCATGCTCAT
<Q I K * R N I F L H K S R R K S R C F W N * C K R Y R M K * W A *
<EA59 (525); CODON START=1; DB XREF=PID:G215132; TRA
<MRNA-PL (ALT.; VIA T'J4 TERMINATOR) [SPLIT]
<MRNA-PL (ALT.; VIA T'J3 TERMINATOR) [SPLIT]
<MRNA-PL (ALT.; VIA T'J2 TERMINATOR) [SPLIT]
<MRNA-PL (ALT.; VIA T'J1 TERMINATOR) [SPLIT]

8400

CAAAGACAGTAAGATAAAACATTGTAACAAAGGAATAGTCAATTCACCAACCATCTGCTCGTAGGAATGCCTTATTTTCTACTGCAGGAATATACCCGCC
<* L C Y S L V N Y C L F L * E L W R S T P I G * K K R S C S Y V --(SEQ ID NO:65)--
<EA59 (525); CODON START=1; DB XREF=PID:G215132; TRA
<MRNA-PL (ALT.; VIA T'J4 TERMINATOR) [SPLIT]
<MRNA-PL (ALT.; VIA T'J3 TERMINATOR) [SPLIT]
<MRNA-PL (ALT.; VIA T'J2 TERMINATOR) [SPLIT]
<MRNA-PL (ALT.; VIA T'J1 TERMINATOR) [SPLIT]

FIG. 2(C2) CONT.

8500

TCCTTCAATAACACTAAACTCCAACATATAGTAACCCCTTAATTTTATTAAATAACCGCAATTATTGGCGGCAACACAGGATCTCTCTTTAAGTTAC
 < MRNA-PL (ALT.; VIA T'J4 TERMINATOR) [SPLIT]
 < MRNA-PL (ALT.; VIA T'J3 TERMINATOR) [SPLIT]
 < MRNA-PL (ALT.; VIA T'J2 TERMINATOR) [SPLIT]
 < MRNA-PL (ALT.; VIA T'J1 TERMINATOR) [SPLIT]

8600

TCTCTATTACATACGTTTTCATCTAAAAATTAGTAGTATTGAACTTAACGGGCGCATCGTATTGTAGTTTTCCATATTAGCTTCTGTGCTTCCTTTTGGGA
 < MRNA-PL (ALT.; VIA T'J4 TERMINATOR) [SPLIT]
 < MRNA-PL (ALT.; VIA T'J3 TERMINATOR) [SPLIT]
 < MRNA-PL (ALT.; VIA T'J2 TERMINATOR) [SPLIT]
 < MRNA-PL (ALT.; VIA T'J1 TERMINATOR) [SPLIT]

8700

TAACCCACTGTTATTTCATGTTGCATGGTGCACTGTTTATACCAACGATATAGTCTATTAAATGCATATATAGTATCGCCGAACGATTAGCTCTTCAGGCCT
 < MRNA-PL (ALT.; VIA T'J4 TERMINATOR) [SPLIT]
 < MRNA-PL (ALT.; VIA T'J3 TERMINATOR) [SPLIT]
 < MRNA-PL (ALT.; VIA T'J2 TERMINATOR) [SPLIT]
 < MRNA-PL (ALT.; VIA T'J1 TERMINATOR) [SPLIT]

8800

CTGAAGAAGCGTTTCAAGTACTAAATAAGCCGATAGATAGCCACGGACTTCGTAGCCATTTTCATAAGTGTTAACTTCGCGCTCCTCGCTCATACAGACA
 < MRNA-PL (ALT.; VIA T'J4 TERMINATOR) [SPLIT]
 < MRNA-PL (ALT.; VIA T'J3 TERMINATOR) [SPLIT]
 < MRNA-PL (ALT.; VIA T'J2 TERMINATOR) [SPLIT]
 < MRNA-PL (ALT.; VIA T'J1 TERMINATOR) [SPLIT]

FIG. 2(C2) CONT.

8900
TTCACACAGTTATGGCGGAAAGGTATGCATGCTGGGTGTGGGAAGTCGTGAAAGAAAGAAAGTCAGCTGCGTCGTTGACATCACTGCTATCTTCTTA
< _____ MRNA-PL (ALT.; VIA T'J4 TERMINATOR) [SPLIT]
< _____ MRNA-PL (ALT.; VIA T'J3 TERMINATOR) [SPLIT]
< _____ MRNA-PL (ALT.; VIA T'J2 TERMINATOR) [SPLIT]
< _____ MRNA-PL (ALT.; VIA T'J1 TERMINATOR) [SPLIT]
9000
CTGGTTATGCAGTCGTAGTGGTGGCACACAAAGCTAGATTAAACCCTAGAAAGATAATCATATTTGTGACGTACGTTAAAGATAATCATGCGTAAATTC
< _____ MRNA-PL (ALT.; VIA T'J4 TERM
< _____ MRNA-PL (ALT.; VIA T'J3 TERM
< _____ MRNA-PL (ALT.; VIA T'J2 TERM
< _____ MRNA-PL (ALT.; VIA T'J1 TERM
9100
ACGCAATGTGTTTTTATCGGTCTGTATATCGAGGTTTATTATTAAATTTGAATAGATATTAAGTTTATTATATTTACACTTACATACTAATAATAATTC
_____ >
_____ LEFT TERMINAL REPEAT _____ >
9200
AACAACAATTTATTATGTTTATTATTATTAATAAAAAACAAAACTCAAAATTTCTCTAAAGTAACAAAACTTTTAAACATTTCTCTCTTTTACAA
9300
AAATAAACTTATTTGTACTTTAAAAACAGTCATGTTGTATTATATAAAATAAGTAATTAGCTTAACCTATACATAAAGAAACAAATTACTATTAGTC
_____ <D
_____ <
9400
AGTCCAGAAACAACCTTTGGCACATATCAATATTATGCTCTCGACAAATAAAGTTTTCATTTTTTGCACGATGCATTTGCCCTTTCGCTTATTATTAGAG
<T W F C S Q C M D I N H E R C I V K K C K K C S A N A K R I K S
_____ ORF1 C-TERM

FIG. 2(C2) CONT.

9500

GGGCAGTAAGTACAGTACGTTTTCATTACTGGCTCTTCAGTACTGTCACTGATGTACCAGGCACCTTCATTGGCAAAATATTAGAGATATTAT
<P C Y T C Y T R K K M V P E E T S D D S T G P V E N P L I N S I N D
< ORF1 C-TERM

9600

CGCGCAAAATATCTCTTCAAAGTAGGAGCTTCTAAACGGTTACGCATAAACGATGACGCTCAGGCTCATGTAAAGTTTCTCATATAAATTTTTCGGACTTTG
<R L Y R K L T P A E L R N R M F S S T L S M Y L N R M F K K R S Q
< ORF1 C-TERM

9700

AACCTTTTCTCCCTTGCTACTGACATTATGGCTGTATATAATAAAGAATTTATGCAGGCAATGTTTATCATCCGTACAATAATGCCATAGGCCACCTA
<V K E G K S S V N H S Y I I F S N I C A I N I M G Y L L A M P W R
< ORF1 C-TERM

9800

TTCGTCTTCCTACTGCAGGTCAACAGAACACATTTCGTAGCGTGTCACCTCCGCCCTTAGTTTGATTATAACATAACCATTTGCGGTTTACCGG
<N T K R S C T M V S C M Q D L T D V G G K T Q N Y Y M V M Q P K G T
< ORF1 C-TERM

9900

TACTTTCGTTGATAGAAGCATCCTCATCACAGAATGATAATAAGTATACCATCTTAGCTGGCTTCGGTTTATATGACGAGAGTAAGGGTCCGTCAA
<S E N I S A D E D C S S L L Y V M K A P K P K Y S V L T L P G D F
< ORF1 C-TERM

ACAAAACATCGATGTTCCCACTGGCCCTGGAGCGACTGTTTTTCAGTACTTCCGGTATCTCGCGTTTGTGATCGCACGGTACC -- (SEQ ID NO:63) --
<C F M S T G V P R S R S N K L V E P I E R K N S R V T G -- (SEQ ID NO:66) --
< ORF1 C-TERM

FIG. 2(C2) CONT.

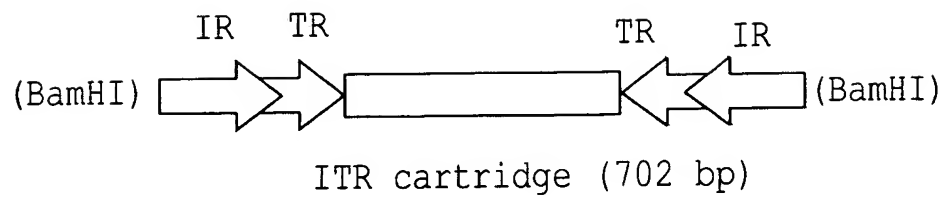


FIG. 3A

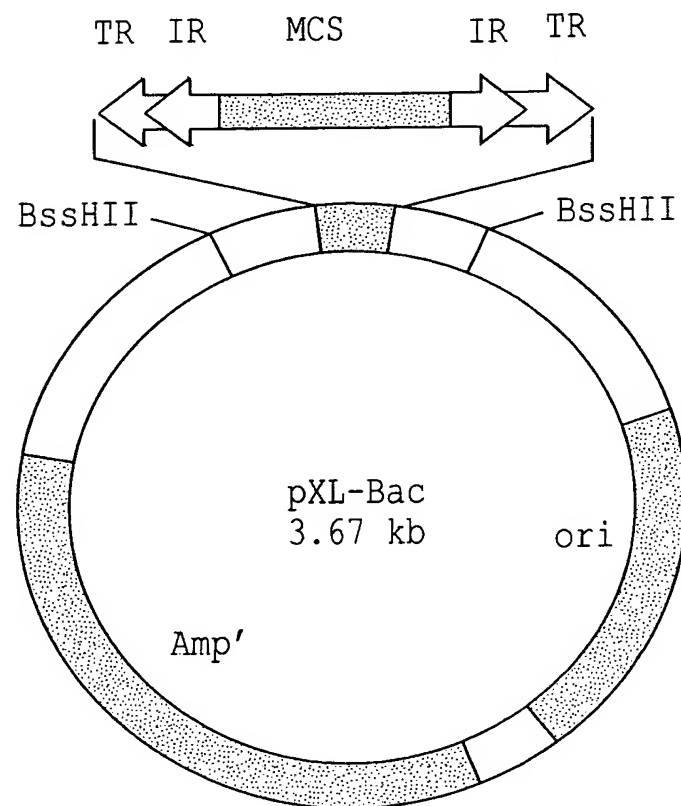


FIG. 3B

ITR Cartridge Sequence

Sequence Range: 1 to 707

```

                                                    50
GGATCCCATGCGTCAATTTTACGCAGACTATCTTTCTAGGGTTAATCTAG
      _____ RIGHT TERMINAL REPEAT _____ >
                                                    100
CTGCATCAGGATCATATCGTCGGGTCTTTTTTCCGGCTCAGTCATCGCCC
                                                    150
AAGCTGGCGCTATCTGGGCATCGGGGAGGAAGAAGCCCGTGCCTTTTCCC
                                                    200
GCGAGGTTGAAGCGGCATGGAAAGAGTTTGCCGAGGATGACTGCTGCTGC
                                                    250
ATTGACGTTGAGCGAAAACGCACGTTTACCATGATGATTCGGGAAGGTGT
                                                    300
GGCCATGCACGCCTTTAACGGTGAACGTTCGTTTCAGGCCACCTGGGATA
                                                    350
CCAGTTCGTCGCGGCTTTTCCGGACACAGTTCCGGATGGTCAGCCCGAAG
                                                    400
CGCATCAGCAACCCGAACAATACCGGCGACAGCCGGAACGTGCCGTGCCGG
                                                    450
TGTGCAGATTAATGACAGCGGTGCGGCGCTGGGATATTACGTCAGCGAGG
                                                    500
ACGGGTATCCTGGCTGGATGCCGCAGAAATGGACATGGATAACCCCGTGAG
                                                    550
TTACCCGGCGGGGCGCGCCTCGTTCATTCACGTTTTTTGAACCCGTGGAGGA
                                                    600
CGGGCAGACTCGCGGTGCAAATGTGTTTTACAGCGTGATGGAGCAGATGA
                                                    650
AGATGCTCGACACGCTGCAGAACACGCAGCTAGATTAACCCTAGAAAGAT
                                                    700
AATCATATTGTGACGTACGTAAAGATAATCATGCGTAAAATTGACGCAT
      _____ LEFT TERMINAL REPEAT _____ >
GGGATCC -- (SEQ ID NO:40) --
_>
```

FIG. 3(C1)

pXL-Bac

Sequence Range: 1 to 3662

```
100 CTAAATTGTAAGCGTTAATAATTTTGTAAAAATTCGCGTTAAATTTTGTAAATCAGCTCATTTTAAACCAATAGGCCGAAATCGGCCAAAATCCCTTAT
200 AAATCAAAGAATAGACCGAGATAGGTTGAGTGTGTCCAGTTTGGAAACAAGAGTCCACTATTAAAGAACGTCGACTCCAACGTCAAAGGGCGGAAAAA
300 CCGTCTATCAGGGCGATGGCCCCACTACGTGAACCATCACCCTAATCAAGTTTGTGGGTCGAGGTGCCGTAAAGCATAAATCGGAACCCCTAAAGGGAG
400 CCCCCGATTAGAGCTTGACGGGGAAGCCGGCGAACGTGGCGAGAAAGGAAGGAAGGAGCGGGCGCTAGGGCGCTGGCAAGTGTTAGCG
500 GTCACGCTGGCGTAACCAACACACCCGGCGGCTTAATGGCCGCTACAGGGCGGTCGCCATTTCAGGCTGCGCAACTGTTGGGAAGGGCGAT
600 CGGTCCGGGCTCTTCGCTATTACGCCAGCTGGCGAAAGGGGATGTGCTGCAAGCGGATTAAGTTGGGTAACGCCAGGGTTTCCCAGTCACGACGTTG
700 TAAACGACGGCCAGTGAGCGGCGCTCGTTTCATTACGTTTTTGAACCCGTGGAGGACGGGCAGACTCGCGGTGCAAAATGTGTTTACAGCGTGATGGAG
800 CAGATGAAGATGCTCGACACGCTGCAGAACACGACGCTAGATTAAACCCTAGAAAGATAATCATATTGTGACGTACGTTAAAGATAATCATGCGTAAATTT
    >MCS of pBSII
    |
    |
900 GACGCGATGGGATCTGTAATACGACTCACTATAGGGCGAATTGGGTACCGGGCCCCCCCCTCGAGGTCGACGGTATCGATAAGCTTGATATCGAATTCCTGCG
    >
```

FIG. 3(C2)

2100 ACCAGGCGTTTCCCCCTGGAAGCTCCCTCGTGGCTCTCCTGTTCGACCCCTGCCGCTTACCGGATACCTGTCCGCCCTTCTCCCTTCGGGAAGCGTGCG
 2200 GCTTTCATAGCTCACGCTGTAGGTATCTCAGTTCGGGTGTAGGTGCTTCGGCTCCAAGCTGGGCTGTGTGCACGAACCCCCCGTTTCAGCCCCGACCGCTGC
 2300 GCCTTATCCGGTAACATACTATCGTCTTGAGTCCAACCCGGTAAGACACGACTTATCGCCACTGGCAGAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATG
 2400 TAGCGGGTGCTACAGAGTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGACAGTATTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGG
 2500 AAAAAAGAGTTGGTAGCTCTTGATCCGGGCAACAAACCACCGCTGGTAGCGGTGGTTTTTTTGTGTGCAAGCAGCAGATTACGGCGCAGAAAAAAGGATCT
 2600 CAAGAAGATCCTTTGATCTTTTCTACGGGGTCTGACGCTCAGTGGAAACGAAACTCAGTTAAGGATTTTGGTCATGAGATTATCAAAAAGGATCTTCA
 <ColEI_origin
 |
 |
 2700 CCTAGATCCTTTTAAATTAAAAATGAAGTTTAAATCAATCTAAAGTATATATAGTAAACTTGGTCTGACAGTTACCAATGCTTAATCAGTGAGGCACC
 <AMPCILLIN RESISTANCE
 2800 TATCTCAGCGATCTGTCTATTTCGTTTCATCCATAGTTGCCTGACTCCCCCGTCGTGTAGATAACTACGATACGGGAGGGCTTACCATCTGGCCCCCAGTGCT
 <AMPCILLIN RESISTANCE
 2900 GCAATGATACCGGAGACCCACGCTCACCGGCTCCAGATTTCAGCAATAAACACGACCCGGAAGGCCGAGCGCAGAAGTGGTCTTGCAACTTTAT
 <AMPCILLIN RESISTANCE

FIG. 3(C2) CONT.

3000
 CCGCCTCCATCCAGTCTATTAAATTGTTGCCGGGAAGCTAGAGTAAGTAGTTCGCCAGTTAATAGTTTGGCGCAACGTTGTTGCCATTGCTACAGGCATCGT
 < _____
 AMPICILLIN RESISTANCE

 3100
 GGTGTCACGGCTCGTCGTTTGGTATGGCTTCATTACAGTCCGGTTCCTCAACGATCAAGCGGAGTTACATGATCCCCCATGTTGTGCAAAAAAGCGGTTAGC
 < _____
 AMPICILLIN RESISTANCE

 3200
 TCCTTCGGTCCCTCCGATCGTTGTCAGAAAGTAAGTTGGCCGCAGTGTATCACTCATGGTTATGGCAGCACTGCATAAATCTCTTACTGTCATGCCCATCCG
 < _____
 AMPICILLIN RESISTANCE

 3300
 TAAGATGCTTTTCTGTGACTGGTGAGTACTCAACCAAGTCATTCTGAGAATAGTGTATGCGGGCGACCGAGTTGCTCTTGTCCCGGCGTCAATACGGGATAA
 < _____
 AMPICILLIN RESISTANCE

 3400
 TACCGCGCCACATAGCAGAACTTTAAAGTGCTCATCATTTGGAACGTTCTTCGGGGCGAAAACTCTCAAGGATCTTACCGCTGTTGAGATCCAGTTCG
 < _____
 AMPICILLIN RESISTANCE

 3500
 ATGTAACCCACTCGTGCACCCCAACTGATCTTCAGCATCTTTTACTTTCACCAGCGTTTCTGGGTGAGCAAAAACAGGAAGCAAAATGCCGCAAAAAAGG
 < _____
 AMPICILLIN RESISTANCE

 3600
 GAATAAGGGCGACACGGAAATGTTGAATACTCATCTCTCCCTTTTCAATATTATTGAAGCATTATCAGGGTTATTGTCTCATGAGCGGATACATATT
 < _____
 AMPICILLIN RESISTANCE

 TGAATGTATTAGAAAAATAACAAATAGGGGTTCCGGCGCACATTTCCCCGAAAAAGTGCCAC -- (SEQ ID NO:41) --

FIG. 3(C2) CONT.

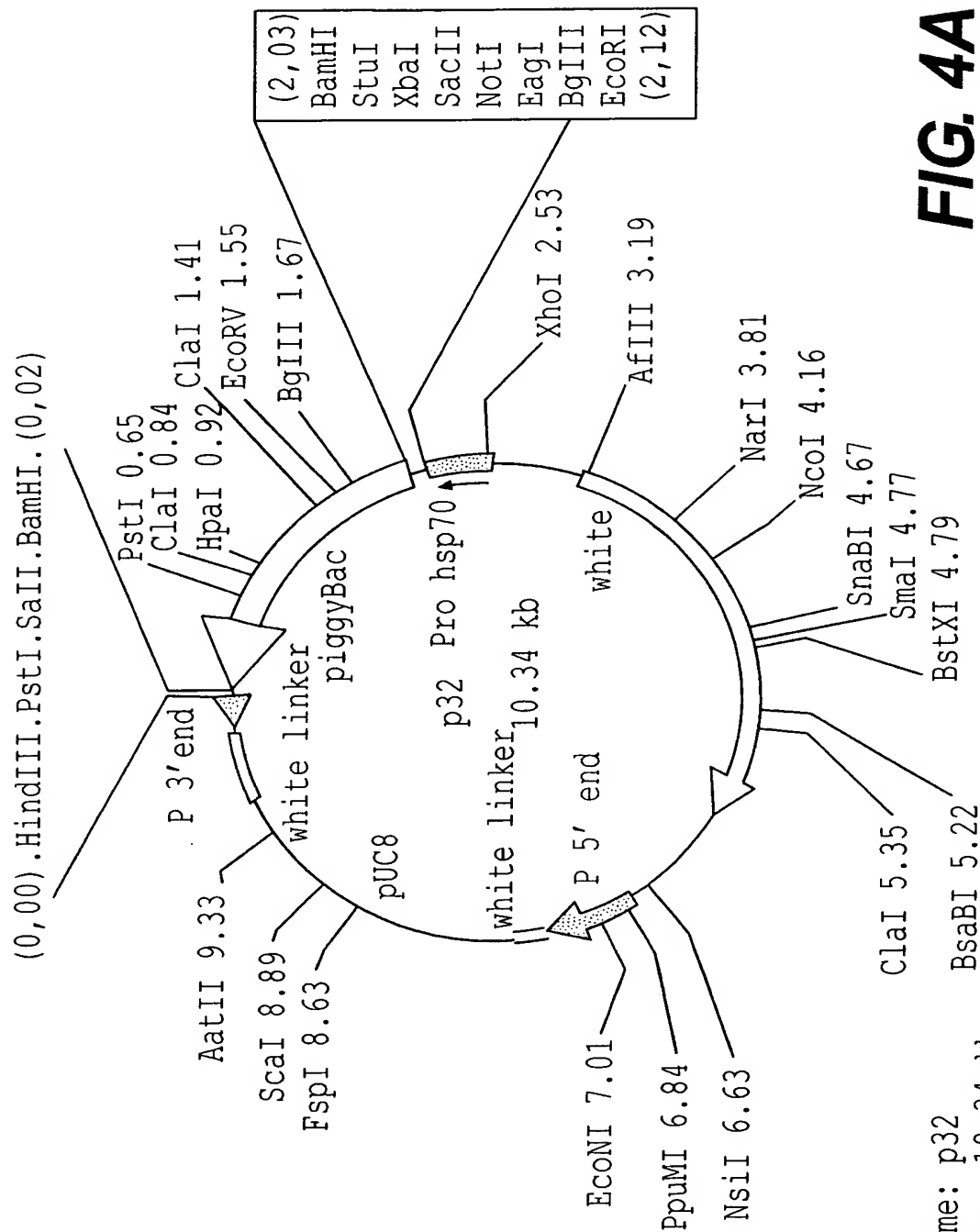


FIG. 4A

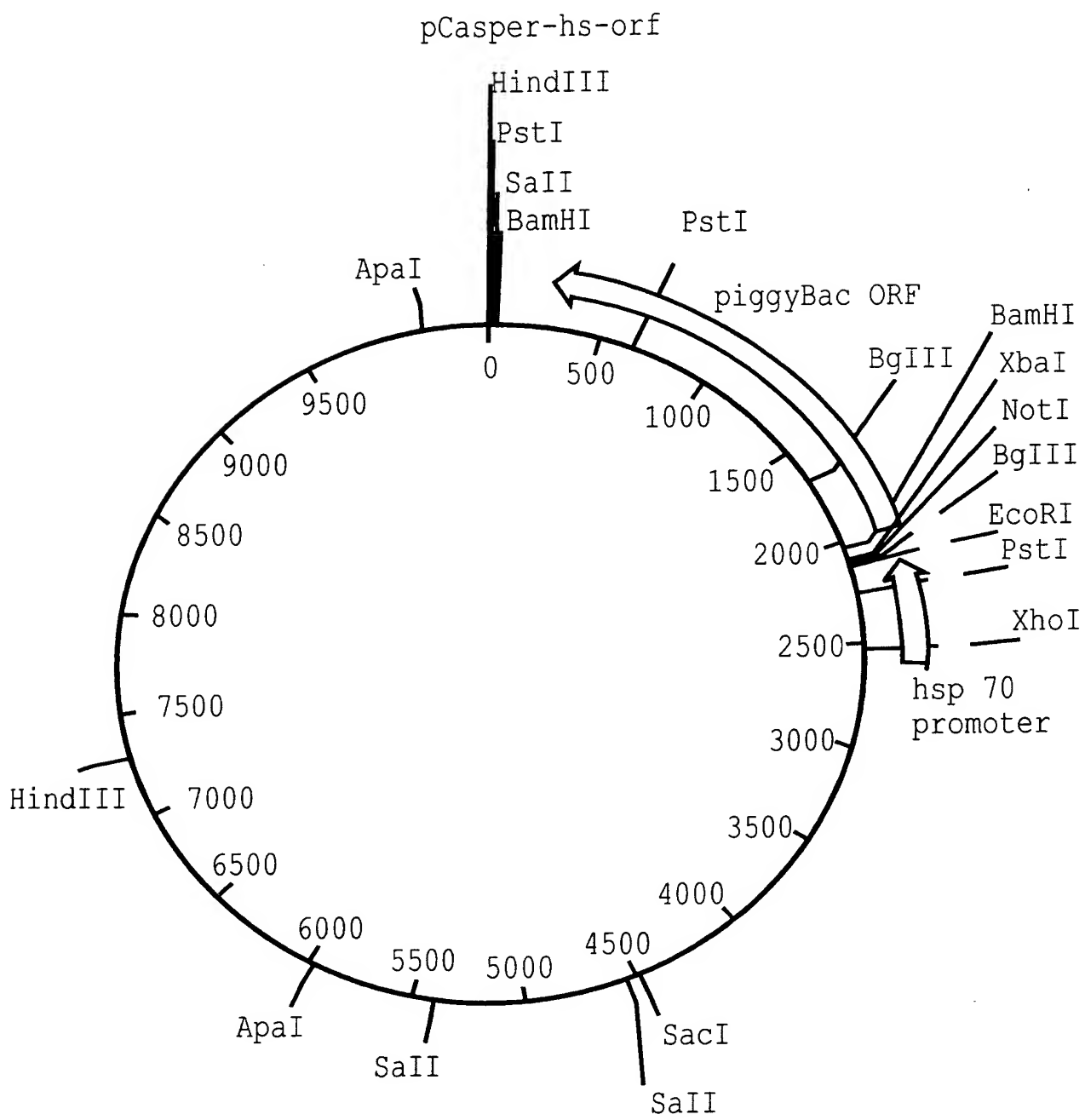


FIG. 5A

pBSII-hs-orf
Sequence Range: 1 to 5533

```
100 CTAAATTGTAAGCGTTAATAATTTTGTGTTAAAAATTCGCGTTAAATTTTGTGTTAAATCAGCTCATTTTAAACCAATAGGCCGAAATCGGCCAAAAATCCCTTAT
200 AAATCAAAGAATAGACCGAGATAGGGTTGAGTGTGTTCCAGTTTGGAAACAAGAGTCCACTATTAAAGAACGTGGACTCCAACGTCAAAGGGCGGAAAAA
300 CCGTCTATCAGGGCGATGGCCCACTACGTGAACCATCACCCCTAATCAAGTTTTTTGGGGTCGAGGTGCCGTAAAGCACTAAATCGGAACCCCTAAAGGGAG
400 CCCCCGATTAGAGCTTGACGGGGAAAGCCGGGAACGTGGCGAGAAAGGAAGGAAAGGAGCGGGCGCTAGGGCGCTGGCAAAGTGTAGCG
500 GTCACGCTGCGCGTAACCAACACACCCGCGCGCTTAATGCGCCGCTACAGGGCGGTCCCATTCGCCATTTCAGGCTGCGCAACTGTTGGGAAGGGCGGAT
600 CGGTGCGGGCCCTCTTCGCTATTACGCCAGCTGGCGAAAGGGGATGTGCTGCAAGCGATTAAAGTTGGGTAACGCCAGGGTTTTCCACAGTCACGACGTTG
700 TAAACGACGGCCAGTGCGCGTAATACGACTCACTATAGGGCGAATTGGGTACCGGGCCCCCTCGAGGTCGACGGTATCGATAAGCTATCCAGT
800 GCAGTAAAAAATAAAAAAAATATGTTTTTTAAATCTACATTCTCCAAAAAAGGGTTTTATTAACTTACATACATACTAGAAATTGATCCCCCGATCCCC
900 CTAGAAATCCCAAAACAACTGGTTATTGTGGTAGGTCATTTGTTTGGCAGAAGAAACTCGAGAAATTTCTCTGCCCGTTATTTCGTTATTCTCTCTTTTC
1000 TTTTGTGGTCTCCCTCTCTGCACTAATGCTCTCTCACTCTGTCAACAGTAAACGGCATACTGCTCTCGTTGGTTCGAGAGCGCGCCTCGAATGTTTCG
1100 CGAAAAGAGCGCGGAGTATAAATAGAGCGCTTCGTCTACGGAGCGACAATTCAATTCAAACAAGCAAAGTGAACACGTCGCTAAGCGAAAGCTAAGCAA
```

FIG. 5(B)

```

1200
ATAAACAGCGCAGCTGAACAAGCTAAACAATCTGCAGTAAAGTGCAAGTTAAAGTGAATCAATTAAAAAGTAACCAGCAACCAAGTAAATCAACTGCAAC
      <hsp70_promoter
      |
      |
1300
TACTGAAATCTGCCAAGAAGTAATTATTGAATACAAGAAGAGAACTCTGAATAGGGAATTGGGAATTTCCTGCAGCCCGGGGATCCTATATAATAAAATG
GGTAGTTCTTTAGACGATGAGCATAATCCTCTCTGCTCTTCTGCAAAGCGATGACGAGCTTGTGGTGAGGATTCTGACAGTGAAATATCAGATCACGTAA
1400
GTGAAGATGACGTCAGAGCGGATACAGAAGAAGCGTTTATAGATGAGGTACATGAAGTGCAGGCCAACGTCGAAGCGGTAGTGAAATATTAGACGAAACAAA
1500
TGTTATTGAACAACCAAGGTTCTTCATTGGCTTCTAACAGAAATCTTGACCTTGCCACAGAGGACTATTAGAGGTAAGAATAAACATTGTTGGTCAACTTCA
1600
AAGTCCACGAGGCGTAGCCGAGTCTCTGCACTGAACATTGTCAGATCTCAAAGAGGTCGACGCGTATGTCCGCAATATATATGACCCCACTTTTATGCT
1700
TCAAACTATTTTACTGATGAGATAATTTTCGGAAATTGTAAATGGACAAATGCTGAGATATCATTTGAAACGTCGGGAATCTATGACAGGTGCTACATT
1800
TCGTGACACCGAATGAAGATGAAATCTATGCTTCTTTGGTATTCTGGTAATGACAGCAGTGAGAAAAGATAACCACATGTCCACAGATGACCTCTTTGAT
1900
CGATCTTTGTCAATGGTGACGTCCTGTAAATGAGTCGTGATCGTTTGTATTTTGTATACGATGTCTTAGAATGGATGACAAAAGTATACGGCCCCACAC
2000
TTCGAGAAAACGATGTATTTACTCCTGTTAGAAAAAATATGGGATCTCTTTATCCATCAGTGCATACAAAATTACACTCCAGGGCTCATTTGACCATAGA
2100
TGAACAGTTACTTGGTTTTAGAGGACGGGTGCCGTTTAGGATGTATATCCCAACAAGCCAAAGTAAGTATGGAATAAAATCCTCATGATGTGTGACAGT
2200

```

FIG. 5(B) CONT.

2300 GGTACGAAGTATATGATAAAATGGAATGCCTTATTTGGGAAGAGGAACACAGACCAACGGAGTACCACTCGGTGAATACTACGTGAAGGAGTTATCAAAGC
2400 CTGTGCACCGTAGTTGTCGTAATATTACGTGTGACAAATTGGTTACACCTCAATCCCTTTGGCAAAAAAATTACTACAAGAACCGTATATAAGTTAACCATTTGT
2500 GGGAAACCGTGCGATCAAACAAACGCGGAGATACCGGAAGTACTGAAAAAACAGTCGCTCCAGGCCAGTGGGAACATCGATGTTTTGTTTGACGGACCCCTT
2600 ACTCTCGTCTCATATAAAACCGAAGCCAGCTAAGATGGTATACTATTATCATCTTGTGATGAGGATGCTTCTATCAACGAAAGTACCGGTAAACCGCAAA
2700 TGGTTATGTATTATAATCAAACCTAAAGCGGAGTGGACACGCTAGACCAAATGTGTTCTGTGATGACCTGCAGTAGGAAGACGAATAGGTGGCCTATGGC
2800 ATTAATTGTACGGAATGATAAACATTGCCCTGCATAAAATTCCTTTATTATATACAGCCATAATGTCAGTAGCAAGGGAGAAAAGGTTCAAAGTCGCAAAAAA
2900 TTTATGAGAAACCTTTACATGAGCCTGACGTCATCGTTTATGCGTAAGCGTTTAGAAGCTCCTACTTTGAAGAGATATTTGCGCGATAATATCTCTAATA
3000 TTTTGCCAAATGAAGTGCCCTGGTACATCAGATGACAGTACTGAAGAGCCAGTAATGAAAAAACGTACTTACTGTACTTACTGCCCCCTCTAAAAATAAGGCG
3100 AAAGGCAAATGCATCGTGCAAAAAATGCAAAAAAGTTATTTGTCGAGAGCATAATATTGATATGTGCCAAAGTTGTTTCTGACTGACTAATAAGTATAAT
3200 TTGTTTCTATTATGTATAAGTTAAGCTAATTACTTATTTTATAATAACAACATGACTGTTTTTTAAAGTACAAAAATAAGTTTATTTTGTAAAAAGAGAGAAT
3300 GTTTAAAGTTTTGTTACTTTAGAGAAATTTTGAGTTTTTTTGTTTTTTTTAAATAAAATAAACATAAAATAAATTGTTTGTGAATTTGGATCCACTA
3400 GTTCTAGAGCGCGCCACCGCGGTGGAGCTCCAGCTTTTGTTCCTTTTAGTGAGGGTTAATTGCGCGCTTGGCGTAATCATGGTCATAGCTGTTTCCIG

FIG. 5(B) CONT.

3500 TGTGAAATTGTTATCCGCTCACAAATTCACACAAACATACGAGCCGGAAGCATAAAGTGTAAGCCCTGGGGTGCCTAATGAGTGAGCTAACTCACATTAAT
3600 TGCGTTGGGCTCACTGCCCGCTTTCAGTCGGGAAACCTGTCGTGCCAGCTGCATTAAATGAATCGGCCAACGCCGGGAGAGCGGTTTGGGTATTGGG
3700 CGCTCTTCCGCTTCCCTCGCTCACTGACTCGCTCGGCTCGGCTCGGCTCGGCGAGCGGTATCAGCTCACTCAAAGGCGGTAATACGGTTATCCACAG
3800 AATCAGGGGATAACGCAGGAAGAACAATGTGAGCAAAAAGGCCAGCAACCGTAAAAAGCCCGGTTGCTGGCGTTTTCATAGGCTCCG
3900 CCCCCCTGACGAGCATCACAAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAGATACCAGGCGTTCCCCCTGGAAGCTCCCTC
4000 GTGGGCTCTCCTGTTCCGACCCCTGCCGCTTACCGGATACCTGTCCGCTTTCCTCCCTTCGGGAAGCGTGGCGCTTCTCATAGCTCACGCTGTAGGTATC
4100 TCAGTTCGGGTAGGTCCGTTCCAGCTGGGCTGTGTGCACGAACCCCGTTTCAGCCCGACCGCTGCCCTTATCCGGTAACATACTCGTCTTGAGTC
4200 CAACCCGGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGCGGTGCTACAGAGTCTTGAAGTGG
4300 TGGCCTAACTACGGCTACACTAGAAGGACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGGAAAAAGAGTTGGTAGCTCTTGATCCGGCA
4400 AACAAACCAACCGCTGGTAGCGGTGGTTTTTTTTTGTTCGAAGCAGCAGATTACGGCGAGAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTTCTACGGG
4500 GTCTGACGCTCAGTGGAACGAAACTCACGTTAAGGATTTTGGTCATGAGATTATCAAAAAGGATCTTCACCTAGATCCTTTTAAATTAAAAATGAAGT

FIG. 5(B) CONT.

<ColE1_origin

|
|

```
4600 TTTAAATCAATCTAAAGTATATAGAGTAAACTTGGTCTGACAGTTACCAATGCTTAATCAGTGAGGCACCTATCTCAGCGATCTGTCTATTTCTGTTTCAT
    AMPCILLIN RESISTANCE >
4700 CCATAGTTGCCTGACTCCCCGTCGTGTAGATAACTACGATACGGGAGGGCTTACCATCTGGCCCCAGTGCTGCAATGATACCGGAGACCCACGCTCACC
    AMPCILLIN RESISTANCE >
4800 GGCTCCAGATTATCAGCAATAAACCAGCCAGCCGGAAGGGCCGAGCGCAGAGTGGTCTCTGCAACTTTATCCGGCCTCCATCCAGTCTATTAAATTGTTGC
    AMPCILLIN RESISTANCE >
4900 CGGGAAGCTAGAGTAAGTAGTTCGCCAGTTAATAGTTTGGCGCAACGTTGTTGCCATTGCTACAGGCATCGTGGTGTCACGCTCGTCTGGTATGGCCTT
    AMPCILLIN RESISTANCE >
5000 CATTGAGCTCCGGTTCCCAACGATCAAGGCGAGTTACATGATCCCCCATGTTGTGCAAAAAGCGGTAGCTCCTTCGGTCCCTCCGATCGTTGTCAGAAG
    AMPCILLIN RESISTANCE >
5100 TAAGTTGGCCCGCAGTGTTATCACTCATGGTTATGGCAGCACTGCATAATTCTCTTACTGTCTATGCCATCCGTAAGATGCTTTTCTGTGACTGGTGAGTAC
    AMPCILLIN RESISTANCE >
5200 TCAACCAAGTCATTCTGAGAAATAGTGTATGCGGCGACCGAGTTGCTCTTGGCCCCGGCTCAATACGGGATAATAACCGGCCACATAGCAGAACTTTAAAAG
    AMPCILLIN RESISTANCE >
5300 TGCTCATATTGGAAAACGTTCTTCGGGGCGGAAAACCTCTCAAGGATCTTACCGCTGTTGAGATCCAGTTCGATGTAAACCCACTCGTGCACCCCACTGATC
    AMPCILLIN RESISTANCE >
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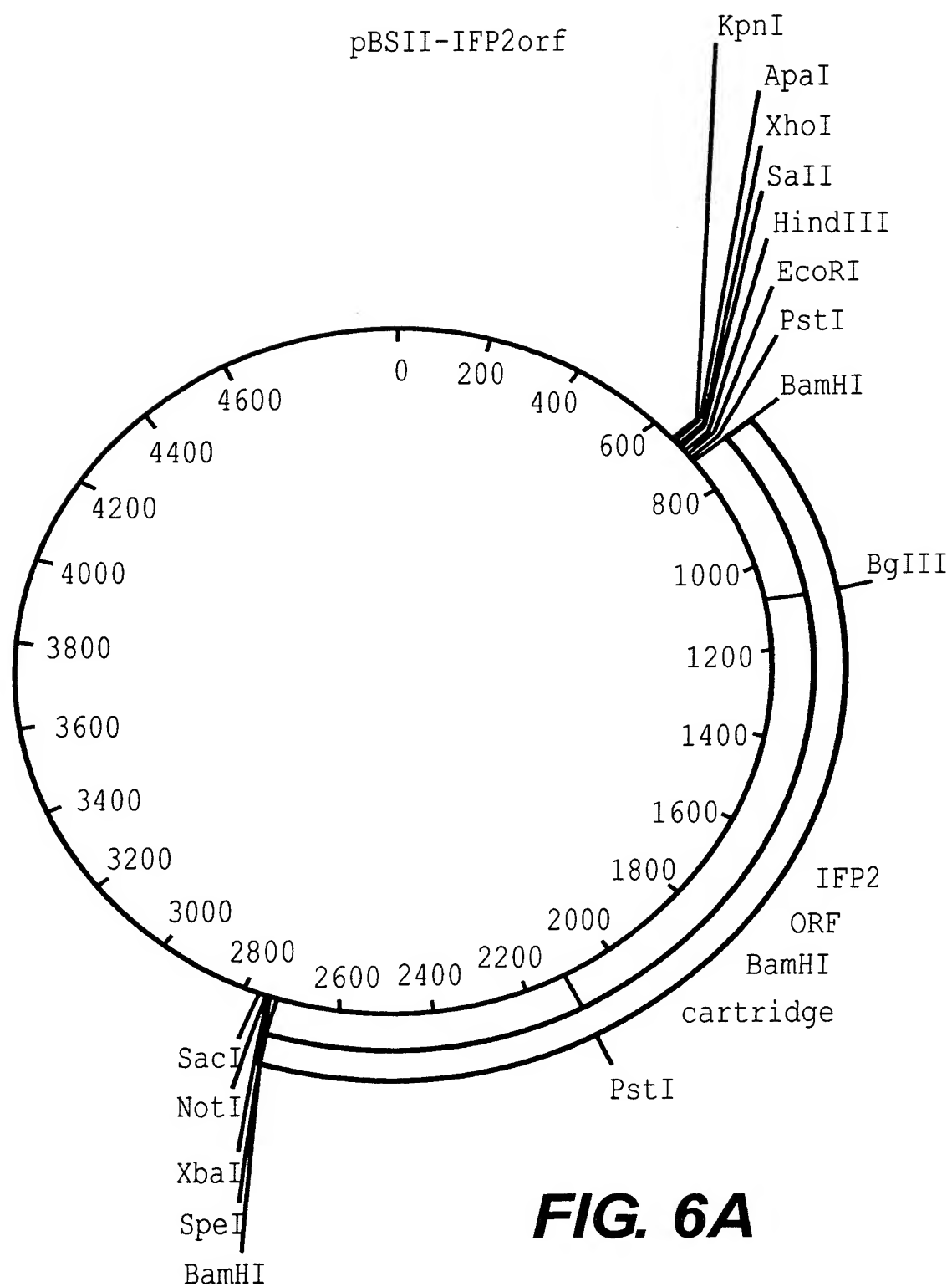
FIG. 5(B) CONT.

5400
TTCAGCATCTTTTACTTTCACCGGTTTCTGGGTGAGCAAAAACAGGAAGGCAAAATGCCGCAAAAAGGGAATAAGGGCGACACGGAAATGTTGAATA

AMPCILLIN RESISTANCE
>
5500
CTCATACTCTTCCTTTTCAATATATTGAAGCATTATATCAGGGTTATTGTCTCATGAGCGGATACATATTGAAATGTTAGAAAAATAAACAAATAG

>
GGGTCCGGCGCACATTTCCCCGAAAGTGCCAC -- (SEQ ID NO:42) --

FIG. 5(B) CONT.



Sequence Range: 1 to 4971

100 CTAAATTGTAAGCGTTAATATTTTGTAAAAATTCGCGTTAAATTTTGTGTTAAATCAGCTCAATTTTAAACCAATAGGCCGAAATCGGCCAAAATCCCTTAT
200 AAATCAAAGAATAGACCGAGATAGGGTTGAGTGTGTTGTTCCAGTTTGGAACAAGAGTCCACTATTAAAGAACGTGGACTCCAACGTCAAAGGGCGGAAAAA
300 CCGTCTATCAGGGCGATGGCCCCACTACGTGAACCATCACCCCTAATCAAGTTTTTTGGGGTCGAGGTGCCGTAAAGCACTAAATCGGAACCCCTAAAGGGAG
400 CCCCCGATTTAGAGCTTGACGGGGAAGCCGGCGAACGTGGCGAGAAAGGAAGGAAGCAAGAGCGGGCGCTAGGGCGCTGGCAAGTGTAGCG
500 GTCAGCTGCGCGTAACCAACACACCCGCCGCGCTTAATGCGCCGCTACAGGGCGCGTCCCATTGCGCCATTCAAGGCTCGGCAACTGTTGGGAAGGGCGAT
600 CGGTGCGGGCCTCTTCGCTATTACGCCAGCTGCCGAAGGGGATGTGCTGCAAGCGGATTAAAGTTGGGTAACGCCAGGGTTTTCCCAGTCACGACGTTG
700 TAAACGACGGCCAGTGAGCGCGCGTAATACGACTCACTATAGGGCGAATTGGGTACCGGGCCCCCCTCGAGGTCGACGGTATCGATAAGCTTGATATC
800 GAATTCCCTGCAGCCCCGGGGATCCTATATAATAAAATGGGTAGTTCTTTAGACGATGAGCATAATCCTCTCTGCTCTCTGCAAAGCGATGACGAGCTTGT
900 TGGTGAGGATTCTGACAGTGAATATCAGATCACGTAAGTGAAGATGACGTCACAGAGCGGATACAGAAGACCGTTTATAGATGAGGTACATGAAGTGCAG
1000 CCAACGTCAGCGGTAGTGAATATTAGACGAACAAAATGTTATTGAACAACCAAGGTTCTTCATTGGCTTCTAACAGAATCTTGACCTTGCCACAGAGGA
1100 CTATTAGAGGTAAGAATAAACATTGTTGGTCAACTTCAAAGTCCACGAGGCGTAGCCGAGTCTCTGCACTGAACATTGTCAGATCTCAAAGAGGTCCGAC

FIG. 6(B)

1200 GCGTATGTGCCGCAATATATGACCCACTTTTATGCTTCAAACATAATTTTACTGATGAGATAAATTCGGAAATGTAAAAATGGACAAATGCTGAGATA
1300 TCATTGAAACGTCGGGAATCTATGACAGGTGCTACATTTTCGTGACACGGAATGAAGATGAAATCTATGCTTCTTTGGTATTCTGGTAATGACAGCAGTGA
1400 GAAAAGATAACCATGTCCACAGATGACCTCTTTTGATCGATCTTTGTCAATGGTGTACGCTCTCTGTAATGAGTCGTCGTCGTTTGTGATTTTGTGATACG
1500 ATGCTTAGAATGGATGACAAAAGTATACGGCCACACTTCGAGAAAACGATGTATTTACTCCTGTTAGAAAAATATGGGATCTCTTTATCCATCAGTGC
1600 ATACAAAATTACACTCCAGGGGCTCATTTGACCATAGATGAACAGTTACTTGGTTTTAGAGGACGGGTGTCGGTTTAGGATGTATATCCCAACAAAGCCAA
1700 GTAAGTATGGAATAAAAATCCTCATGTGTGACAGTGGTACGAAGTATATGATAAATGGAATGCCCTTATTTGGGAAGAGGAACACAGACCAACGGGAGT
1800 ACCACTCGGTGAATACTACGTGAAGGAGTTATCAAAGCCTGTGCACGGTAGTTGTTCGTAATATTACGTGTGACAAATTGGTTCACCTCAATCCCTTTGGCA
1900 AAAAACTTACTACAAGAACCGTATAAGTTAACCATTTGTGGGAACCGTGCGATCAAACAACGGCGAGTACCCGGAAGTACTGAAAAACAGTCGCTCCAGGC
2000 CAGTGGGAACATCGATGTTTGTTTTGACGGACCCCTTACTCTCGTCTCATATAAACCGAAGCCAGCTAAGATGGTATACTTATTATCATCTTGTGATGA
2100 GGATGCTTCTATCAACGAAAGTACCGGTAACCGCAAAATGGTTATGTATTATAATCAAACATAAAGGCGGAGTGGACACGCTAGACCAAAATGTGTCTGTG
2200 ATGACCTGCAGTAGGAAGACGAATAGGTGGCCCTATGGCATTATTGTACGGAATGATAAACATATGSCCTGCATAAAATCTTTTATTATATACAGCCATAATG
2300 TCAGTAGCAAGGGAGAAAAGGTTCAAAGTCGCAAAAATTTATGAGAAAACCTTTACATGAGCCTGACGTCATCGTTTATCGCTAAGCGTTTAGAAGCTCC

FIG. 6(B) CONT.

```

2400 TACTTTGAAGAGATAATTTCGCGGATAATATCTCTAATATTTTGCCAAATGAAGTGCCTGGTACATCAGATGACAGTACTGAAGAGCCAGTAATGAAAAA
2500 CGTACTTACTGTACTTACTGCCCCCTCTAAATAAAGCGAAAGCCAAATGCATCGTGCAAAAAATGCAAAAAAGTTATTGTCTGAGAGCATAATATTGATA
2600 TGTGCCAAAGTTGTTCTGACTGACTAATAAGTATAAATTTGTTCTATTATGTATAAGTTAAGCTAATTACTTATTTTATAATACAACATGACTGTTTTT
2700 AAAGTACAAAAATAAGTTTATTTTGTAAAGAGAGAAATGTTTAAAGTTTTGTACTTTAGAAAGAAATTTTGAGTTTTTGTGTTTTTTTAAATAAATAAT
2800 AAACATAAAATAAATTGTTGTTGAATTTGGATCCACTAGTTCTAGAGCGGGCCACCAGCGGTGGAGCTCCAGCTTTTGTTCCTTTAGTGAGGGTTAAT
2900 TCGCGCGTTGGCGTAATCATGGTCATAGCTGTTTCCCTGTGTGAAATTGTTATCCGCTCACAAATCCACACAAATACGAGCCGGAAGCATAAAGTGTA
3000 GCCTGGGGTGCCTAATGAGTGAGCTAACTCACATTAATTGCGTTGCGCTCACTGCCCGCTTCCAGTCGGGAAACCCTGTCGTGCCAGCTGCATTAATGAA
    >Cole1_origin
3100 TCGGCCAACGCGCGGGAGAGCGGTTTGCGGTATTGGGCGCTCTTCCGCTTCCTCGCTCACTGACTCGCTGCGCTCGGTCGTTCGGCTGCGGCGAGCGGT
3200 ATCAGCTCACTCAAAGCGGTAATACGGTTATCCACAGAATCAGGGGATAACGCAGGAAGAAACATGTGAGCAAAAGGCCAGCAAAAGGCCAGGAACCGT
3300 AAAAAGCGCGGTGCTGGCGTTTTTCCATAGGCTCCGCCCCCCTGACGAGCATCACAAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGAC
3400 TATAAAGATACCAGGCGTTTCCCCCTTGGAAAGCTCCCTCGTGGCTCTCCTGTTCGACCCCTGCCGCTTACCGGATACCTGTCCGCCTTTCTCCCTTCGGG

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FIG. 6(B) CONT.

```

3500 AAGCGTGGCGCTTCTCATAGCTACGCTGTAGGTATCTCAGTTCGGGTAGGTCGTTCCGCTCCAAGCTGGGCTGTGTGCACGAACCCCCCGTTCAGCCCC
3600 GACCGCTGGCCCTTATCCGGTAAC TATCGTCTTGAGTCCAACCCGGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAG
3700 CGAGGTATGAGCGGTGCTACAGAGTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAGGACAGTATTTGGTATCTGCGGCTCTGCTGAAGCCAGT
3800 TACCTTCGGAAAAAGAGTTGGTAGCTCTTGATCCGGCAACAAACCACCGCTGGTAGCGGTGGTTTTTTTGTTCGAAGCAGCAGATTACGCGCAGAAAA
3900 AAAGGATCTCAAGAAGATCCTTTGATCTTTTCTACGGGGTCTGACGGCTCAGTGGAAACGAAAACTCACGTTAAGGGATTTTGGTCA TGAGATTATCAAAAA
4000 GGATCTTACCTAGATCCTTTTAAATTAATAATGAAGTTTTAAATCAATCTAAAGTATATATAGTAAACTTGGTCTGACAGTTACCAATGCTTAATCAG
>
4100 TGAGGCACCTATCTCAGCGATCTGTCTATTTTCGTTCA TC CATAGTTGCCTGACTCCCCGTCGTTAGATAAACTACGATACGGAGGGCTTACCATCTGCG
AMPCILLIN RESISTANCE
4200 CCCAGTGTGCAATGATACCGCGAGACCCACGCTCACCGGCTCCAGATTATCAGCAATAAACCCAGCCGGAAGGGCCGAGCGCAGAAAGTGGTCCTG
AMPCILLIN RESISTANCE
4300 CAACTTTATCCGCCCTCCATCCAGTCTATTAATTGTTGCCGGGAAGCTAGAGTAAGTAGTTCGCCAGTTAATAGTTTGGCGCAACGTTGTTGCCATTGCTAC
AMPCILLIN RESISTANCE
4400 AGGCATCGTGGTGCACGCTCGTTCGTTTGGTATGGCTTCATT CAGCTCCGGTTC CCAACGATCAAGGCGAGTTACATGATCCCCCATGTTGTGCAAAAAA
AMPCILLIN RESISTANCE
>

```

FIG. 6(B) CONT.

4500
 GCGGTTAGCTCCTTCGGTCCTCCGATCGTTGTCAGAAAGTAAGTTGGCCGCAGTGTTATCACTCATGGTTATGGCAGCACTGCATAATTCTCTTACTGTCA

 AMPICILLIN RESISTANCE >

 4600
 TGCCATCCGTAAGATGCTTTTCTGTGACTGGTGAGTACTCAACCAAGTCATTCTGAGAAATAGTGATGCGGCGACCGAGTTGCTCTTGCCCCGGCGTCAAT

 AMPICILLIN RESISTANCE >

 4700
 ACGGGATAATACCGCGCCACATAGCAGAACTTTAAAGTGCTCATCATTTGGAAAACGTTCTTCGGGGCGAAAACTCTCAAGGATCTTACCGCTGTTGAGA

 AMPICILLIN RESISTANCE >

 4800
 TCCAGTTCGATGTAAACCCACTCGTGCACCCAACTGATCTTCAGCATCTTTTACTTTTACCACGCGTTTCTGGGTGAGCAAAAACAGGAAGGCAAAATGCCG

 AMPICILLIN RESISTANCE >

 4900
 CAAAAAGGGAATAAGGGCGACACGGAAATGTTGAATACTCATACTCTTCCTTTTCAATATTATTGAAGCATTTATCAGGGTTATTGTCTCATGAGCGG

 AMPICILLIN RESISTANCE >

 ATACATATTGAATGTATTTAGAAAAATAAACAAATAGGGGTTCCGCGCACATTTCCCCGAAAAGTGCCAC -- (SEQ ID NO:43) --

FIG. 6(B) CONT.

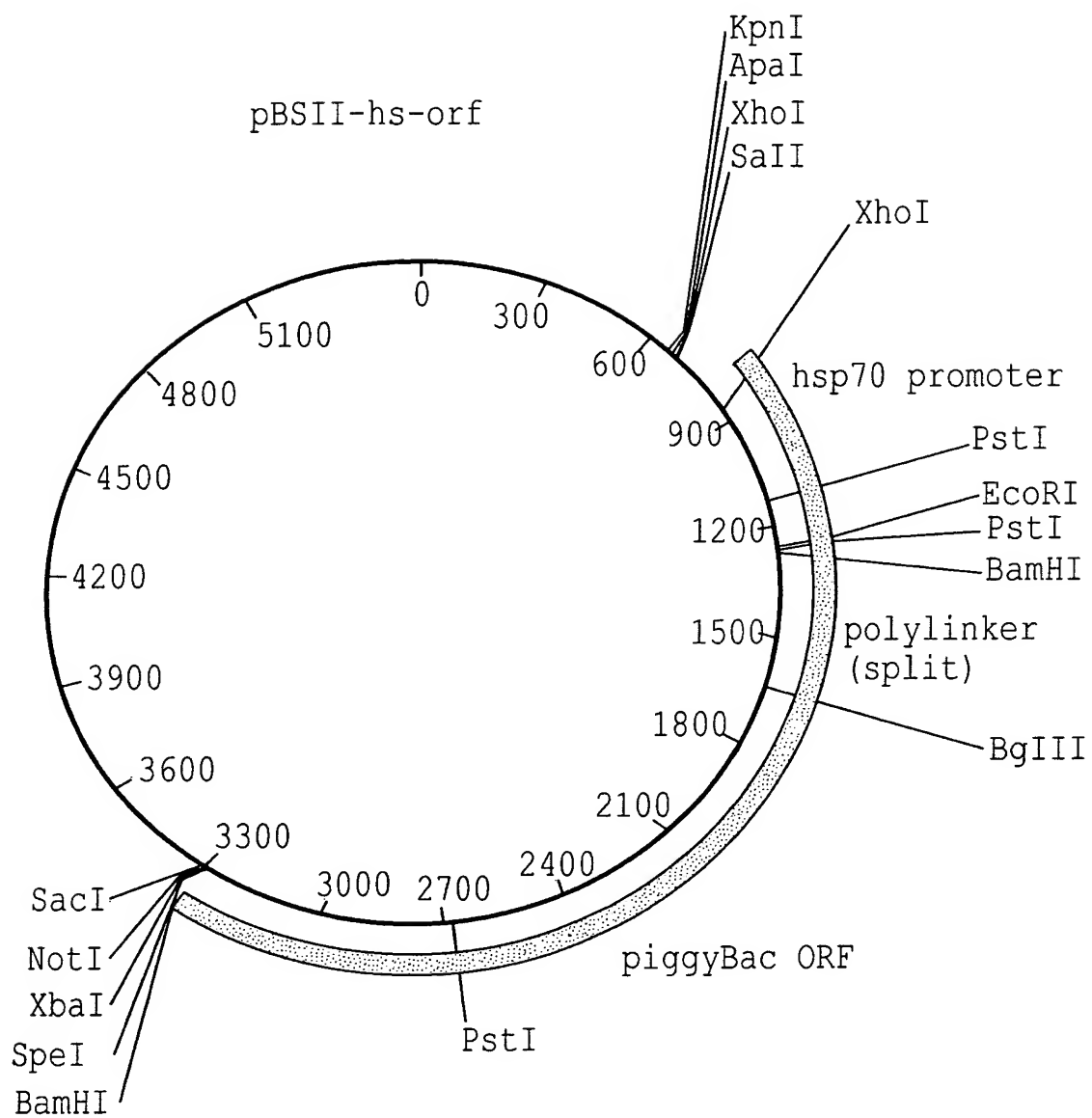


FIG. 7

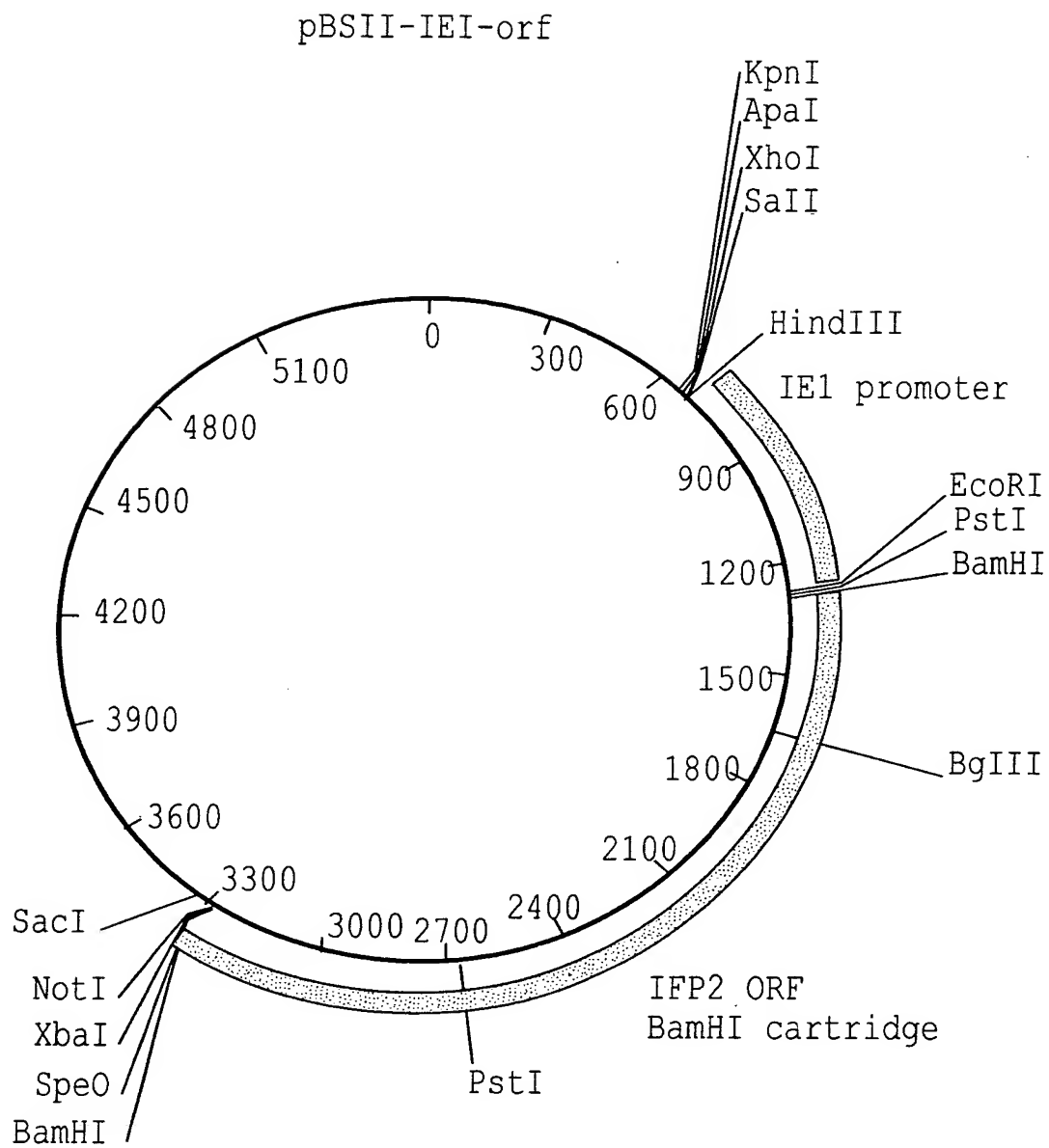


FIG. 8A

Sequence Range: 1 to 5523

```
100 CTAAATTGTAAGCGTTAATAATTTTGTAAATTCAGCTCATTTTTTAACCAATAGGCCGAAATCGGCAAAATCCCTTAT
200 AAATCAAAGAATAGACCGAGATAGGGTTGAGTGTGTTCCAGTTTGGAACAAGAGTCCACTATTAAAGAACGTGGACTCCAACGTCAAAGGGCGAAAAA
300 CCGTCTATCAGGGCGATGGCCCACTACGTGAACCATCACCCTAATCAAGTTTTTTGGGGTCGAGGTGCCGTAAAGCACTAAATCGGAACCCCTAAAGGGAG
400 CCCCCGATTTAGAGCTTGACGGGGAAGCCGGGGAACGTGGCGAGAAAGGAAGGAAAGCGGGCGCTAGGGCGCTGGCAAGTGTAGCG
500 GTCAGCTGCGCGTAACCAACACACCCGCCGCGCTTAATGGCGCGCTACAGGGCGCGTCCCATTTCGCCATTTCAGGCTGCGCAACTGTTGGGAAGGGCGAT
600 CGGTGCGGGCCTCTTCGCTATTACGCCAGCTGGCGAAAGGGGGATGTGCTGCAAGCGGATTAAAGTTGGTTAACGCCAGGGTTTTTCCCAGTCACGACGTTG
700 TAAACGACGGCCAGTGAGCGCGCGTAATACGACTCACTATAGGGCGAATTGGGTACCGGGCCCCCCTCGAGTTCGACGGTATCGATAAGCTTCGATGT
800 CTTTGTGATGCGCGCGACATTTTGTAGGTATTGATAAAATGAACGGATACAGTTGCCCGACATTATCATTAATCCTTGGCGTAGAATTTGTCCGGTCC
900 ATTGTCCGTGTGCGCTAGCATGCCCGCTAACGGACCTCGTACTTTTGGCTTCAAAGGTTTTTGGCACAGACAAATGTGCCACACTTGCAGCTCTGCAATG
1000 TGTGCGCGTTACCACAAATCCCAACGGCGCAGTGTAATTGTTGTATGCAATAAATCTCGATAAAGCGCGCGCGGAATGCAGCTGATCAGGTACGCT
1100 CCTCGTGTCCGTTCAAGGACGGTGTATCGACCTCAGATTAAATGTTTATCGGGCCGACTGTTTTCGTATCCGCTCACCAAACGGGTTTTTGCATTAAACAT
```

FIG. 8(B)

1200 TGTATGTCGGCGGATGTTCTATATCTAAATTGAATAAATAAACGATAACCGCGTTGGTTTTAGAGGGCATAATAAAGAAATATTGTTATCGTGTTCGCC
1300 ATTAGGCAGTATAAATTGACGTTCAATGTTGGATATTGTTTCAGTTGCAAGTGAAATTCCTGCAGCCCCGGGGATCCCTATATAATAAAATGGGTAGTCTT
1400 TAGACGATGAGCATATCCTCTCTGCTCTTGCAAAAGCGATGACGAGCTTGTTGGTGAGGATTCTGACAGTGAAATATCAGATCACGTAAGTGAAGATGA
1500 CGTCCAGAGCGATACAGAAGAAGCGTTTATAGATGAGGTACATGAAGTGCAGCCAACGTCAGCGGTAGTGAAAATATTAGACGAACAAAATGTTATTGAA
1600 CAACCAGGTTCTTCATTGGCTTCTAACAGAATCTTGACCCTGCCACACAGAGGACTATTAGAGGTAAGAATAAACATTGTTGGTCAACTTCAAAGTCCACGA
1700 GGCGTAGCCGAGTCTGCACTGAACATTGTCAGATCTCAAAGAGGTCCGACGCGTATGTGCCGCAATATATATGACCCCACTTTTATGCTTCAAACACTATT
1800 TTTTACTGATGAGATAAATTCGGAAAATTGTAAAAATGGACAAATGCTGAGATATCATTTGAAACGTCGGGAATCTATGACAGGTGCTACATTTTCGTGACACG
1900 AATGAAGATGAAAATCTATGCTTTCTTTGGTATTCTGGTAATGACAGCAGTGAGAAAAGATAACCACATGTCCACAGATGACCTCTTTTGATCGATCTTTGT
2000 CAATGGTGACGTCTCTGTAATGAGTCGTGATCGTTTGTATTTTGTATACGATGCTTTAGAAATGGATGACAAAAGTATACGGCCCACTTCGAGAAAA
2100 CGATGTATTTACTCCTGTAGAAAAAATATGGGATCTCTTTATCCATCAGTGCATACAAAATTACACTCCAGGGGCTCATTTGACCATAGATGAACAGTTA
2200 CTTGGTTTTAGAGGACGGTGTCGGTTTAGGATGTATATCCCAACAAGCCAAGTAAGTATGGAATAAAAAATCCTCATGATGTGTGACAGTGTACGAAAGT
2300 ATATGATAAATGGAATGCCCTTATTTGGGAAGAGGAACACAGACCAACGGAGTACCACCTCGGTGAATACTACGTGAAGGAGTTATCAAAAGCCTGTGCACGG

FIG. 8(B) CONT.

2400 TAGTTGTCGTAATATTACGTGTGACAAATTGGTTACCCCTCAATCCCTTTGGCAAAAACTTACTACAAGAACCGTATAAGTTAACCAATTGTGGGAACCGTG
2500 CGATCAAAACAAACGGAGATACCGGAAGTACTGAAAAACAGTCGCTCCAGGCCAGTGGGAACATCGATGTTTGTGTTTGACGGACCCCTTACTCTCGTCT
2600 CATATAAACCGAAGCCAGCTAAGATGGGTATACTTATTATCATCTTGTGATGAGGATGCTTCTATCAACGAAAGTACCGGTAAACCGCAAAATGGTTATGTA
2700 TTATAATCAAACCTAAAGCGGAGTGGACACGCTAGACCAAAATGTGTCTGTGATGACCTGCAGTAGGAAGACGAATAGGTGGCCTATGGCATTATTGTATC
2800 GGAATGATAAACATTGCCCTGCATAAAATCTTTTATTATATACAGCCATAATGTCTAGTAGCAAGGAGAAAGGTTCAAAGTCGCAAAAAATTTATGAGAA
2900 ACCTTTACATGAGCCTGACGTCATCGTTTATGCGTAAGCGTTTAGAAGCTCCTACTTTGAAGAGATATTTGCGCGATAATATCTCTAATATTTTGCCAAA
3000 TGAAGTGCCTGGTACATCAGATGACAGTACTGAAGAGCCAGTAATGAAAAAACGTACTTACTGTACTTACTGCCCCCTCTAAAAATAAGGCGAAAGGCAAT
3100 GCATCGTGCAAAAAAATGCAAAAAAGTTATTTGTCGAGAGCATAATATTGATATGTGCCAAAGTTGTTTCTGACTGACTAATAAGTATAATTTGTTTCTAT
3200 TATGTATAAGTTAAGCTAATTACTTATTTTATAATACAACATGACTGTTTTTAAAGTACAAAAATAAGTTTATTTTGTAAAAAGAGAGAAATGTTTAAAAGT
3300 TTTGTTACTTTAGAAGAAATTTGAGTTTTTGTGTTTTTTTAAATAAATAAATAAATAAATTTGTTGTAATTTGGATCCACTAGTTCTTAGAGC
3400 GGCCGCCACCGCGGTGGAGCTCCAGCTTTTGTTCCTTTAGTGAGGGTTAATTGCGCGCTTGCGGTAATCATGGTCATAGCTGTTTCCCTGTGTGAAATTG

FIG. 8(B) CONT.

```

3500 TTATCCGCTCAAAATTCCACACAACATACGAGCCGGAAGCATAAAGTGTAAGCCTGGGGTGCCCTAATGAGTGAGCTAACTCACATTAATTGCGTTGCGC
>Cole1_origin
|
3600 TCACTGCCCGCTTTCAGTCGGGAAACCCTGTCGTGCCAGCTGCATTAATGAATCGGCCAACGCGCGGGAGAGCGGTTTGCGTATTGGGCGCTCTTCCG
3700 CTTCCTCGCTCACTGACTCGCTGCGCTCGTTCGGCTGCGGCGAGCGGTATCAGCTCACTCAAAGCGGTAATACGGTTATCCACAGAAATCAGGGGA
3800 TAACGCAGGAAGAACAATGTGAGCAAAGGCCAGCAAAGCCAGGAACCGTAATAAGCCGCTTGCTGGCGTTTTCATAGGCTCCGCCCCCTGAC
3900 GAGCATCACAATAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAAGATACCAGGCGTTTCCCCCTGGAAAGCTCCCTCGTGGGCTCTC
4000 CTGTTCCGACCCCTGCCGCTTACCGGATACCTGTCCGCCTTTCTCCCTTCGGGAAGCGTGGCGCTTCTCATAGCTCACGCTGTAGGTATCTCAGTTCGGT
4100 GTAGGTCGTTCCGCTCCAAGCTGGGCTGTGTGCACGAACCCCCCGTTTCAGCCCCGACCGCTGGCCCTTATCCGGTAACATATCGTCTTGAGTCCAACCCGGTA
4200 AGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGCGGTGCTACAGAGTTCTTGAAGTGGTGGCCTAACT
4300 ACGGCTACACTAGAAGGACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGGAAAAAGAGTTGGTAGCTCTTGATCCGGCAAAACAACCCAC
4400 CGCTGGTAGCGGTGGTTTTTTTGTGCAAGCAGCAGATTACGGCGCAAAAAAGGATCTCAAGAAGATCCCTTTGATCTTTTCTACGGGGTCTGACGCT
4500 CAGTGGAACGAAAACTCACGTTAAGGGATTTTGGTCATGAGATTATCAAAAAGGATCTTCACCTAGATCCCTTTAAATTAATAAGATTTTAAATCAA
4600 TCTAAAGTATATGAGTAAACTTGGTCTGACAGTTACCAATGCTTAATCAGTGAGGCACCTATCTCAGCGGATCTGTCTATTTTCGTTTCATCCATAGTTGC
      AMPCILLIN RESISTANCE >

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FIG. 8(B) CONT.

4700 CTGACTCCCCGTCGTGTAGATAACTACGATACGGGAGGGCTTACCATCTGGCCCCAGTGCTGCAATGATACCGCGAGACCCACGGCTCACCGGCTCCAGAT
 AMPICILLIN RESISTANCE >
 4800 TTATCAGCAATAAACAGCCAGCCGGAAGGGCCGAGCGCAGAAAGTGGTCCCTGCAACTTTATCCGCCTCCATCCAGTCTATTAAATTGTTGCCGGGAAGCTA
 AMPICILLIN RESISTANCE >
 4900 GAGTAAGTAGTTCGCCCAGTTAAATAGTTTGGCGCAACGTTGTTGCCATTGCTACAGGCATCGTGGTGTACGGCTCGTCGTTTGGTATGGCTTCATTCAGCTC
 AMPICILLIN RESISTANCE >
 5000 CGGTTCCCAACGATCAAGCGGAGTTACATGATCCCCCATGTTGTGCAAAAAAGCGTTAGCTCCTTCGGTCCTCCGATCGTTGTGCAGAAAGTAAGTTGGCC
 AMPICILLIN RESISTANCE >
 5100 GCAGTGTATCACTCATGTTATGGCAGCACTGCATAATTCTCTTACTGTCAATGCCATCCGTAAAGATGCTTTTCTGTGACTGGTGAGTACTCAACCAAGT
 AMPICILLIN RESISTANCE >
 5200 CATTCTGAGAAATAGTGTATGCGGGCGACCGAGTTGCTCTTGCCCGGGCTCAATACGGGATAATACCGGCCACATAGCAGAACTTTAAAAGTGCTCATCAT
 AMPICILLIN RESISTANCE >
 5300 TGGAACACGTTCTTCGGGGCGAAACTCTCAAGGATCTTACCGCTGTTGAGATCCAGTTCGATGTAAACCCACTCGTGCACCCCACTGATCTTCAGCATCT
 AMPICILLIN RESISTANCE >
 5400 TTACTTTTACCAGCGTTTCTGGGTGAGCAAAAACAGGAAGGCAAAATGCCGCAAAAAGGGAATAAGGGCGCACACGGAAATGTTGAATACTCATACTCT
 AMPICILLIN RESISTANCE >
 5500 TCCTTTTCAATATTATTGAAGCATTTATCAGGGTTATTGTCTCATGACGGGATACATATTGTAATGTATTTAGAAAAATAAACAAATAGGGGTTCCGGC
 CACATTTCCCGAAAAGTCCAC -- (SEQ ID NO:44) --

FIG. 8(B) CONT.

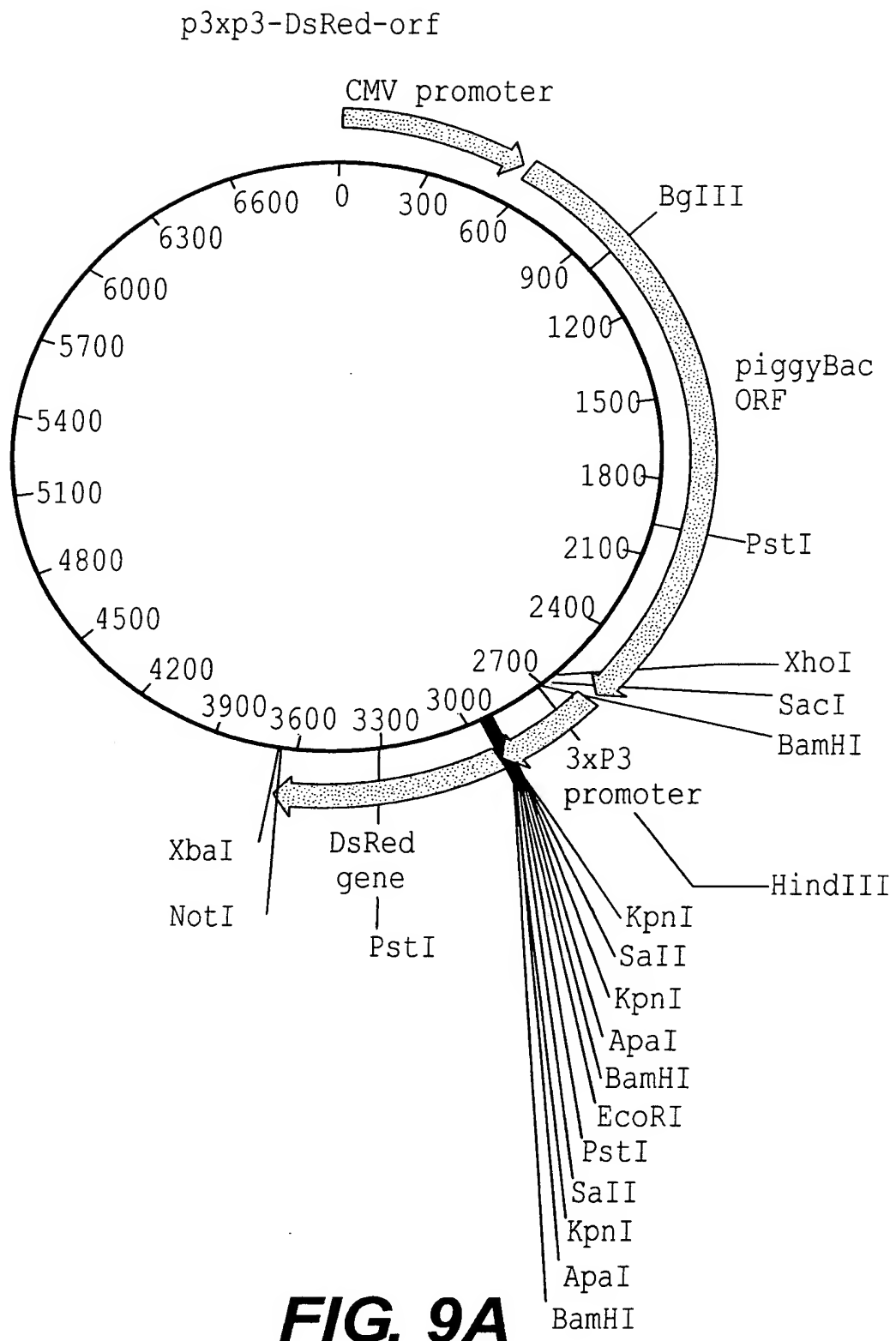


FIG. 9A

p3XP3-DsRed-orf

Sequence Range: 1 to 6984

```
100 TAGTTAATAAGTAATCAATTACGGGGTCATTAGTTCATAGCCCATATATGGAGTTCGCGGTACATAAATACTACGGTAAATGGCCCGCTGGCTGACCG
    CMV PROMOTER
200 CCCAACGACCCCGCCATTGACGTCAATAATGACGTATGTTCCCATAGTAACGCCAATAGGGACTTCCATTGACGTCAATGGGTGGAGTATTACGGT
    CMV PROMOTER
300 AAAGTCCCACTTGGCAGTACATCAAGTGTATCATATGCCAAGTACGCCCCCTATTGACGTCAATGACGGTAAATGGCCCGCTGGCATTTATGCCCAGTA
    CMV PROMOTER
400 CATGACCTTATGGGACTTTCCTACTTGGCAGTACATCTACGTATTAGTCATCGCTATTACCATGGTGATGCGGTTTGGCAGTACATCAATGGCGGTGGA
    CMV PROMOTER
500 TAGCGGTTTGACTCACGGGGATTCCAAAGTCTCCACCCCATTTGACGTCAATGGGAGTTTGTTTGGCACCAAAATCAACGGGACTTCCAAAAATGTCGTA
    CMV PROMOTER
600 ACAACTCCGCCCCATTGACGCAAAATGGGCGGTAGGCGTGTAACGGTGGAGGTCTATATAAGCAGAGCTGGTTTAGTGAACCGTCAGATCCGCTAGCGCTA
    CMV PROMOTER
700 CCGGACTCAGATCCTATATAATAAATGGGTAGTTCCTTAGACGATGAGCATATCCTCTCTGCTCTTCTGCAAAGCGATGACGAGCTTGTTGGTGAGGAT
    PIGGYBAC ORF
800 TCTGACAGTGAAATATCAGATCAGTAAAGTGAAGATGACGTCCAGACCGGATACAGAAAGCGTTTATAGATGAGGTACATGAAGTGCAGCCCAACGTCAA
    PIGGYBAC ORF
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FIG. 9(B)

900 GCGGTAGTGAATATTAGACGAACAAATGTTATTGAACAACCCAGGTTCTTTCATTGGCTTCTTAACAGAAATCTTGACCTTGCCACAGAGGACTATTAGAGG
 PIGGYBAC ORF >
 1000 TAAGAAATAAACATTGTTGGTCAACTTCAAAGTCCACGAGGCGTAGCCGAGTCTCTGCACCTGAACATTGTCTCAGATCTCAAAGAGGTCCGACGCGTATGTGC
 PIGGYBAC ORF >
 1100 CGCAATATATGACCCCACTTTTATGCTTCAAACATAATTTTACTGATGAGATAAATTTTCGGAAATTTGTAATAATGGACAAATGCTGAGATATCATTTGAAAC
 PIGGYBAC ORF >
 1200 GTCGGGAATCTATGACAGGTGCTACATTTCGTGACACGAATGAAGATGAAATCTATGCTTTCTTTGGTATTCTGGTAATGACAGCAGTGAGAAAAGATAA
 PIGGYBAC ORF >
 1300 CCACATGTCCACAGATGACCTCTTTTGATCGATCTTTTGTCAATGGTGTACGTCTCTGTAATGAGTCGTGATCGTTTGTGATACGATGTCTTAGA
 PIGGYBAC ORF >
 1400 ATGGATGACAAAAGTATACGGCCCACTTCGAGAAAACGATGATTACTCTCTGTAGAAAAATATGGGATCTCTTTATCCATCAGTGCATACAAAAATT
 PIGGYBAC ORF >
 1500 AACTCCAGGGCTCATTTGACCATAGATGAACAGTTACTTGGTTTTAGAGGACGGTGTCCGTTTAGGATGTATATCCAAACAAGCCAAGTAAGTATGG
 PIGGYBAC ORF >
 1600 AATAAAAATCCTCATGATGTGTGACAGTGGTACGAAGTATATGATAAATGGAATGCCTTATTTGGGAAGAGGAACACAGACCAACGGAGTACCACCTCGGT
 PIGGYBAC ORF >
 1700 GAATACTACGTGAAGGAGTTATCAAAGCCTGTGCACGGTAGTTGTGCGTAATATTACGTGTGACAAATTGGTTACCTCAATCCCTTTGGCAAAAAACCTTAC
 PIGGYBAC ORF >

FIG. 9(B) CONT.

1800 TACAAGAACCGGTATAAGTTAACCATTTGTGGGAACCGTGCGGATCAAAACGCGGAGATACCGGAAGTACTGAAAAACAGTCGCTCCAGGCCAGTGGGAAC
 PIGGYBAC ORF >
 1900 ATCGATGTTTGTGTTTGACGGACCCCTTACTCTCGTCTCATATAAACCGAAGCCAGCTAAGATGGTATACTTATTATCATCTTGTGATGAGGATGCTTCT
 PIGGYBAC ORF >
 2000 ATCAACGAAAGTACCGGTAAACCGCAAAATGGTTATGTATTATAATCAAACTAAAGCGGAGTGGACACGCTAGACCCAAATGTGTCTGTGATGACCTGCA
 PIGGYBAC ORF >
 2100 GTAGGAAGACGAATAGGTGGCCTATGGCATTATTGTACGGAATGATAAACATTGCCTGCATAAAATCTTTTATTATATACAGCCATAATGTCAGTAGCAA
 PIGGYBAC ORF >
 2200 GGGAGAAAAGGTTCAAAGTCGCAAAAAATTTATGAGAAAACCTTTACATGAGCCTGACGTCATCGTTTATGCGTAAGCGTTTAGAAGCTCCTACTTTGAAG
 PIGGYBAC ORF >
 2300 AGATATTGCGCGATAATATCTCTAATATTTTGCCAAATGAAGTGCCCTGGTACATCAGATGACAGTACTGAAGAGCCAGTAATGAAAAAACGTACTTACT
 PIGGYBAC ORF >
 2400 GTACTTACTGCCCTCTAAAAATAAGGCGAAAGGCAAAATGCATCGTGCAAAAAATGCAAAAAAGTTATTGTGCGAGAGCATAAATATTGATATGTGCCAAAG
 PIGGYBAC ORF >
 2500 TTGTTTCTGACTGACTAATAAGTATAATTGTGTTCTATTATGTATAAGTTAAGCTAATTACTTATTTTATAATAACAACATGACTGTTTTTAAAGTACAAA
 PIGGYBAC ORF >
 2600 ATAAGTTATTTTGTAAAAGAGAGAAATGTTTAAAGTTTTGTTACTTTAGAGAAATTTTGAGTTTTTGTTTTTTTTAAATAAAATAAACATAAAT
 PIGGYBAC ORF >

FIG. 9(B) CONT.

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2700
AAATTGTTTGTGAATTGGATCTCGAGGTTCCACAAATGGTTAATTTCGAGCTCGCCCGGGGATCTAATTCAATTAGAGACTAATTCAATTAGAGCTAAT
      PIGGYBAC ORF      >
      3XP3 PROMOTER
2800
TCAATTAGGATCCAAGCTTATCGATTTCGAACCCCTCGACCGCCCGGAGTATAAATAGAGGGCGCTTCGTCTACGGAGCGACAATTCAATTCAAACAAGCAAA
      3XP3 PROMOTER
2900
GTGAACACGTCGCTAAGCGAAAGCTAAGCAATAAACAAGCGCAGCTGAACAAGCTAAACAATCGGGGTACCGCTAGAGTCGACGGTACCGCGGGCCCCGG
      3XP3 PROMOTER
3000
GATCCACCGGTCGCCACCATGAATTCTGCAGTCGACGGTACCGCGGGCCCGGGATCCACCGGTCCGCCACCATGGTGGCGCTCCTCCAAGAAGTCATCAAG
      3XP3 PROMOTER >
      DSRED GENE
3100
GAGTTCATGCGCTTCAAGGTGCGCATGGAGGGCACCCGTGAACGGCCACGAGTTCGAGATCGAGGGCGAGGGCGGCCCTACGAGGGCCACAACA
      DSRED GENE
3200
CCGTGAAGCTGAAGGTGACCAAGGGCGGCCCTTCCCTTGGGACATCCTGTCCCCCAGTTCACGTACGGCTCCAAGGTGTACGTGAAGCACCCC
      DSRED GENE
3300
CGCCGACATCCCCGACTACAAGAAGCTGTCTTCCCCGAGGGCTTCAAGTGGGAGCGCGTGTGAACCTTCGAGGACGGCGGCGGTGGTGACCGTGACCCAG
      DSRED GENE
3400
GACTCCTCCCTGCAGGACGGCTGCTTCATCTACAAGGTGAAGTTCATCGGCGTGAACCTTCCCCCTCCGACGGCCCCGTAAATGCAGAAGAAGACCATGGGCT
      DSRED GENE

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FIG. 9(B) CONT.

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3500 GGGAGGCCTCCACCGAGCGCCTGTACCCCGGACGGCGTGCTGAAGGGCGAGATCCACAAGGCCCTGAAGCTGAAGGACGGCGGCCACTACCTGGTGGA
    DSRD GENE >
3600 GTTCAAGTCCATCTACATGGCCAAGAAGCCCGTGCAGCTGCCCCGGCTACTACTACGTGGACTCCAAGCTGGACATCACCTCCCACAACGAGGACTACACC
    DSRD GENE >
3700 ATCGTGGAGCAGTACGAGCGCACCGAGGGCGCCACCCACCTGTTCCCTGTAGCGCGCGGACTCTAGATCATAAATCAGCCATACCACATTTGTAGAGGTTT
    DSRD GENE >
3800 TACTTGCTTTAAAAAACCTCCCACACCTCCCCCTGAACCTGAAACATAAAATGAATGCAATTGTTGTTAACTTGTATTGTCAGCTTATAATGGTTA
3900 CAAATAAAGCAATAGCATCACAAATTTTCCAAATAAAGCATTTTTCACCTGCATTCTAGTTGTGGTTGTCCAAACTCATCATGTATCTTAAGGCGTA
>f1_single-strand_DNA_origin
4000 AATTGTAAGCGTTAATATTTGTAAATTCGCGTTAAATTTTGTAAATCAGCTCATTTTTTAACCAATAGCCGAAATCGGCAAAATCCCCTTATAAA
4100 TCAAAAGATAGACCGAGATAGGTTGAGTGTGTTCCAGTTTGGAAACAAGAGTCCACTATTAAAGAACGTGGACTCCAACGTCAAAGGGCGGAAACCCG
4200 TCTATCAGGGCGATGGCCCACTACGTGAACCATCACCCCTAATCAAGTTTTTTGGGGTCGAGGTGCCGTAAAGCACTAAATCGGAACCCCTAAAGGGAGCCCC
4300 CCGATTTAGAGCTTGACGGGGAAAGCCCGCGAACGTTGGCGAGAAAGGAAGCGAAAGGAGCGGGCGCTAGGGCGCTGGCAAGTGTAGCGGTC

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FIG. 9(B) CONT.

```

4400      |
ACGCTGCGCGTAACCAACACCCCGCGCTTAATGCGCCGCTACAGGGCGCTCAGGTGGCACCTTTTCGGGAAATGTGCGGGAACCCCTATTGT
>Bacterial_promoter_for_expression_of_Kan_resistance_gene
      |
4500      |
TATTTTCTAAATACATTCAAATATGTATCCGCTCATGAGACAATAACCCCTGATAAAATGCTTCAATAATATTGAAAAGGAAGAGTCCTGAGGCGGAAAG
      >SV40_early_promoter_and_origin_of_replication
4600      |
AACCAGCTGTGGAATGTGTGTCAGTTAGGGTGTGGAAGTCCCCAGGCTCCCCCAGCAGGCAGAGTATGCAAAGCATGCATCTCAATTAGTCAGCAACCA
4700
GGTGTGGAAGTCCCCAGGCTCCCCAGCAGGCAGGAAGTATGCAAAGCATGCATCTCAATTAGTCAGCAACCATAGTCCCCGCCCTTAACCTCCGCCCATCCCC
4800
GCCCTAACTCCGCCCCAGTTCCGCCCATTTCTCCGCCCAATGCTGGCTGACTAAATTTTTTTATTATGCAGAGGCCGAGGCCGCTCGGCCCTCTGAGCTATTC
4900
CAGAAAGTAGTGAGGAGGCTTTTGGAGGCCTAGGCTTTTGCAAAGATCGATCAAGAGACAGGATGAGGATCGTTTCGCATGATTGAACAAGATGGATTG
5000
CAGCAGGTTCTCCGGCCGCTTGGGTGGAGAGGCTATTTCGGCTATGACTGGGCACAACAGACAATCGGCTGCTCTGATGCCGCCGTGTTCGGGCTGTCAG
KANAMYCIN RESISTANCE GENE
5100
CGCAGGGCGCCCGGTTCTTTTGTCAAGACCGACCTGTCCGGTGCCCTGAATGAATGCAAGACGAGGCAGCCGGCTATCGTGGCTGGCCACGACGGG
KANAMYCIN RESISTANCE GENE
5200
CGTTCCTTGCGCAGCTGTGCTCGACGTTGTCACTGAAGCGGGAAGGACTGGCTGCTATTGGGCCGAAGTGCCGGGCAGGATCTCCTGTCTCATCTCACCTT
KANAMYCIN RESISTANCE GENE

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FIG. 9(B) CONT.

```

5300 GCTCCTGCCGAGAAAGTATCCATCATGGCTGATGCAATGCGGGCGGTGCATACGCTTGATCCGGCTACCTGCCCATTCGACCACCAAGCGAAACATCGCA
      KANAMYCIN RESISTANCE GENE >
5400 TCGAGCGAGCACGTA CTCTCGGATGGAAGCCGGTCTTGTCTGATCAGGATGATCTGGACGAAGAGCATCAGGGGCTCGCGCCAGCCGAACTGTTCCGCCAGGCT
      KANAMYCIN RESISTANCE GENE >
5500 CAAGCGGAGCATGCCCGACGGCGGAGGATCTCGTCGTGACCCATGGCGATGCCCTGCTGCCGAATATCATGGTGGAAAAATGGCCGCTTTTCTGGATTCTATC
      KANAMYCIN RESISTANCE GENE >
5600 GACTGTGGCCCGGCTGGGTGTGGCGGACCGCTATCAGGACATAGCGTTGGCTACCCGTGATATTGCTGAAGAGCTTGGCGGCGAATGGGCTGACCGCTTCC
      KANAMYCIN RESISTANCE GENE >
5700 TCGTGTCTTACGGTATCGCCGCTCCCAGATTGCGACGGCATCGCCTTCTATCGCCTTCTTGACGAGTCTTCTGAGCGGGACTCTGGGGTTCGAAATGACC
      KANAMYCIN RESISTANCE GENE >
5800 GACCAAGCGACGCCCAACCTGCCATCACGAGATTTCGATTCCACGCCGCCCTTCTATGAAAGTTGGGCTTCGGAATCGTTTTCCGGGACGCCGGCTGGA
5900 TGATCCTCCAGCGCGGGATCTCATGCTGGAGTCTTTCGCCCAACCTAGGGGGAGGCTAACTGAAACACGGAAGGAGACAATACCGGAAGGAACCCGCGC
>Herpes_simplex_virus_(HSV)_thymidine_kinase_(TK)_polyA_signals
6000 TATGACGGCAATAAAAGACAGATAAAACGCACGGTGTGGGTCTGTTGTTTCATAAACGCGGGGTTCGGTCCCAGGGCTGGCACTCTGTCTGATACCCCA
6100 CCGAGACCCCATTTGGGGCCAATACGCCCGCGGTTCTTCTCTTTTCCCCACCCCCAACGTTTCGGGTGAAGGCCCCAGGGCTCGCAGCCCAACGTCGGGG

```

FIG. 9(B) CONT.

```

6200 CCGCAGGGCCCTGCCATAGCCTCAGGTTACTCATATATACTTTAGATTGATTTAAAACTTCATTTTAAATTTAAAGGATCTAGGTGAAGATCCTTTTGA
    >pUC_plasmid_replication_origin
        |
        |
6300 TAATCTCATGACCAAAATCCCTTAACGTGAGTTTTCGTTCCACTGAGCGTCAGACCCCGTAGAAAAGATCAAAGGATCTTCTTGAGATCCTTTTTTCTG
6400 CGCGTAATCTGCTGCTTGCAAAACAAAAACCACCGCTACCAGCGGTGTTGTGTGCCGGATCAAGAGCTACCAACTCTTTTCCGAAGGTAACTGGCT
6500 TCAGCAGAGCGCAGATACCAAAATACTGTCCCTTCTAGTGTAGCCGTAGTTAGGCCACCACTTCAAGAACTCTGTAGCACCGCCTACATAACCTCGCTCTGCT
6600 AATCCTGTTACCAGTGGCTGCTGCCAGTGGCGATAAGTCGTGCTTACCGGGTTGGACTCAAGACGATAGTTACCGGATAAGGCGCAGCGTCCGGGCTGA
6700 ACGGGGGTTCGTGCACACAGCCCAGCTTGGAGCGAACGACCTACACCGAACTGAGATACCTACACCGTGAGCTATGAGAAAGCGCCACGCTTCCCGAAG
6800 GGAGAAAGCGGACAGGTATCCGGTAAGCGGCAGGGTCGGAACAGGAGCGCACGAGGGAGCTTCCAGGGGGAACGCCCTGGTATCTTTATAGTCCTGT
6900 CGGGTTTCGCCACCTCTGACTTGAGCGTCGATTTTGTGATGCTCGTCAGGGGGCGGAGCCCTATGGA AAAACGCCCAGCAACCGGGCCTTTTACGGTTC
CTGGCCCTTTTGCTGGCCCTTTTGCTCACATGTTCTTTCCCTGCGTTATCCCCTGATTCTGTGGATAACCGTATTACCGCCATGCAT -- (SEQ ID NO:45) --

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FIG. 9(B) CONT.

PCR11 - ITR

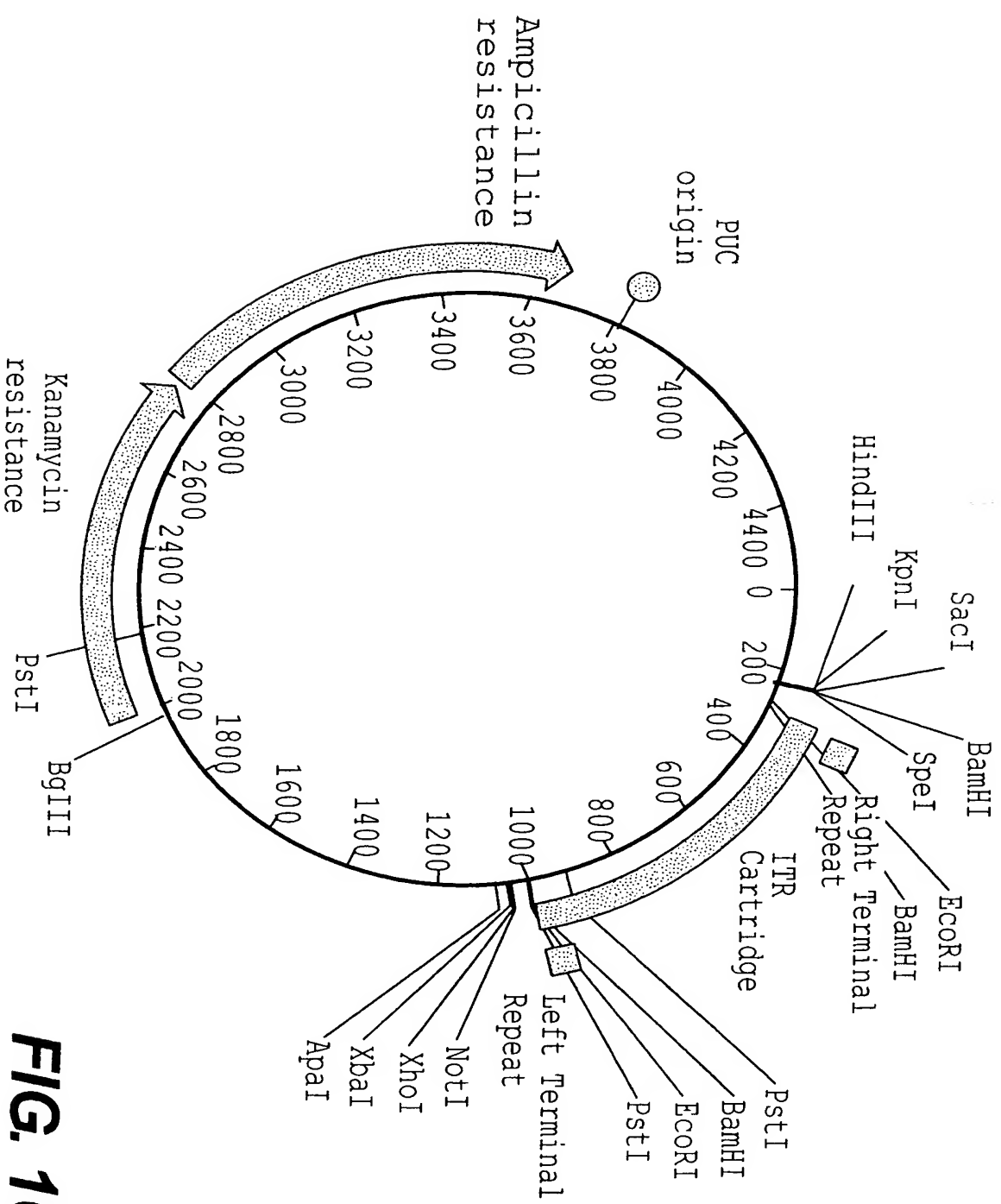


FIG. 10A

Sequence Range: 1 to 4613

```
100 AGCGCCCAATACGCAACCGCCTCTCCCGCGCGTTGGCCGATTCAATATGCAGCTGGCACGACAGGTTTCCCGACTGGAAAGCGGCAGTGAGCGCAA
200 CGCAATTAATGTAGTTAGCTCACTCATTAGGCACCCAGGCTTTACACTTTATGCTTCCGGCTCGTATGTTGTGTGGAATTGTAGCGGATAACAATTT
300 CACACAGGAACAGCTATGACCATGATTACGCCAAGCTTGGTACCGAGCTCGGATCCACTAGTAACGCCGCCAGTGTGCTGGAATTCCGGCTTGGATCCC
>
400 ATGGGTCAATTTACGCAGACTATCTTTCTAGGGTTAATCTAGCTGCATCAGGATCATATCGTCGGGTCTTTTTCGGGCTCAGTCATCGCCCCAAGCTGG
L H Q D H I V G S F F R L S H R P S W>
B (CAPSID COMPONENT;533); CODON START=1; DB XREF=P >
L H Q D H I V G S F F R L S H R P S W>
PROCESSED B; CODON START=1 [SPLIT] >
RIGHT TERMINAL REPEAT >
500 CGCTATCTGGGCATCGGGAGGAAGACCCGTCGCCCTTTCCCGCGAGGTTGAAGCGGCATGGAAAGAGTTGCCGAGGATGACTGCTGCTGCATTGACG
R Y L G I G E E A R A F S R E V E A A W K E F A E D D C C I D>
B (CAPSID COMPONENT;533); CODON START=1; DB XREF=PID:G215108; TRA [SPLIT] >
R Y L G I G E E A R A F S R E V E A A W K E F A E D D C C I D>
PROCESSED B; CODON START=1 [SPLIT] >
```

FIG. 10(B)

600

TTGAGCGAAACGCACGTTTACCATGATTCGGGAAGGTGTGGCCATGCACGCCCTTAACGGTGAACCTGTTCTCAGGCCACCTGGGATACCAGTTC
V E R K R T F T M I R E G V A M H A F N G E L F V Q A T W D T S S>
B (CAPSID COMPONENT;533); CODON START=1; DB XREF=PID:G215108; TRA [SPLIT]
V E R K R T F T M I R E G V A M H A F N G E L F V Q A T W D T S S>
PROCESSED B; CODON START=1 [SPLIT]

700

GTCGCGGCTTTCCGGACACAGTTCGGGATGTCAGCCCGAAGCGCATCAGCAACCCGAACAATACCGGCGACAGCCGGAACCTGCCGTGCCGGTGTGCAG
S R L F R T Q F R M V S P K R I S N P N N T G D S R N C R A G V Q>
B (CAPSID COMPONENT;533); CODON START=1; DB XREF=PID:G215108; TRA [SPLIT]
S R L F R T Q F R M V S P K R I S N P N N T G D S R N C R A G V Q>
PROCESSED B; CODON START=1 [SPLIT]

800

ATTAATGACAGCGGTGGCGCTGGGATATTACGTCAGCGAGGACGGGTATCCTGGCTGGATCCGCGAGAATGGACATGGATACCCCGTGAGTTACCCG
I N D S G A A L G Y Y V S E D G Y P G W M P Q K W T W I P R E L P>
B (CAPSID COMPONENT;533); CODON START=1; DB XREF=PID:G215108; TRA [SPLIT]
I N D S G A A L G Y Y V S E D G Y P G W M P Q K W T W I P R E L P>
PROCESSED B; CODON START=1 [SPLIT]

900

GCGGCGCGCCTCGTTTCATTCACGTTTGTGAACCCCGTGGAGGACGGGCAGACTCGCGGTGCAAAATGTTTACAGCGGTGATGGAGCAGATGAAGATGCT
G G R A S F I H V F E P V E D G Q T R G A N V F Y S V M E Q M K M L>
B (CAPSID COMPONENT;533); CODON START=1; DB XREF=PID:G215108; TRA [SPLIT]
G G R A S F I H V F E P V E D G Q T R G A N V F Y S V M E Q M K M L>
PROCESSED B; CODON START=1 [SPLIT]

FIG. 10(B) CONT.

```

1000
CGACACGCTGCAGAACACGCAGCTAGATTAAACCCTAGAAAGATAATCATATTGTGACGTACGTTAAAGATAATCATGCGTAAATTTGACGCATGGGATCC
D T L Q N T Q> --(SEQ ID NO:47) --
B (CAPSID COMPO >
D T L Q N T Q> --(SEQ ID NO:47) --
PROCESSED B; CO >
LEFT TERMINAL REPEAT >
1100
AAGCCGAATTCTGCAGATATCCATCACACTGGCGGCGCTCGAGCATGCATCTAGAGGGCCCAATTGCCCCATATAGTGAGTCGTATTACAATTCACTGGC
1200
CGTCGTTTACAACGTCGTGACTGGGAAAACCCCTGGCGTTACCCAACTTAATCGCCCTTGCAGCACATCCCCCTTTCGCCAGCTGGCGTAATAGCGAAGAG
1300
GCCCGCACCGATCGCCCTTCCCAACAGTTGCGCAGCCTGAATGGCGAATGGGACGGCCCTGTAGCGGCGCATTAAGCGCGGCGGGTGTGGTTAGCTACGC
1400
GCAGCGTGACCGCTACACTTGCCAGCGGCCCTAGCGCCCGCTCCTTTCGCTTCTTCCCTTCTGCCCAGCTTCGCCGGCTTTCGCCGTCAAGCTCT
1500
AAATCGGGGGCTCCCTTTAGGGTCCGATTTAGAGCTTTACGGCACCTCGACCGCAAAAACCTTGATTGGGTGATGGTTACAGTAGTGGGCCATCGCCC
1600
TGATAGACGGTTTTTCGCCCTTTGACGTTGGAGTCCACGTTCTTTAATAGTGGACTCTTGTCCAAACTGGAACAACACTCAACCCATTCGCGGTCTATT
1700
CTTTTGATTATAAGGGATTTTGCCGATTTTCGGCCTATTGGTTAAAAAATGAGCTGATTTAACAAATTCAGGGCGCAAGGCTGCTAAAGGAACCGGAAC
1800
ACGTAGAAAGCCAGTCCGCAGAAACGGTGCTGACCCCGGATGAATGTCAGCTACTGGGCTATCTGGACAAGGAAAAACGCAAGCGCAAGAGAAAGCAGG

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FIG. 10(B) CONT.

1900 TAGCTTGCACTGGGCTTACATGGCGATAGCTAGACTGGGCGGTTTATGGACAGCAAGCAACCGGAATTGCCAGCTGGGGCGCCCTCTGGTAAGTTGG
2000 GAAGCCCTGCAAAGTAAACTGGATGGCTTCTTGCCCGCCAAGGATCTGATGGCGCAGGGGATCAAGATCTGATCAAGAGACAGGATCAGGATCGTTTCGC
2100 ATGATTGAACAAGATGGATTGCACGCAGGTTCTCCGGCCGCTTGGGTGGAGAGGCTATTTCGGCTATGACTGGGCACAACAGACAAATCGGCTGCTCTGATG
2200 CCGCCGTGTTCCGGCTGTCAAGCGCAGGGGGCGCCGGTTCTTTTGTCAAGACCGACCTGTCCGGTGCCCTGAATGAACCTGCAGGACGAGGCAGCGCGGCT
2300 ATCGTGGCTGGCCACGACGGGCGTTCCCTTGGCGCAGCTGTGCTCGACGTTGTCACTGAAGCGGGAAGGACTGGCTGCTATTGGCGGAAGTGCCGGGCGAG
2400 GATCTCCTGTCACTCGCCCTTGCTCCTGCCGAGAAAGTATCCATCATGGCTGATGCAATCCGGCGGCTGCATACGCTTGATCCGGCTACCTGCCCATTCG
2500 ACCACCAAGCGAAACATCGCATCGAGCGAGCACGTACTCGGATGGAAGCCGGTCTTGTGATCAGGATGATCTGGACGAAGAGCATCAGGGGCTCGCGCC
2600 AGCCGAACTGTTCCGCCAGGCTCAAGGCGGCGCATGCCCGACGGCGAGGATCTCGTCGTGATCCATGGCGATGCCCTGCTTGCCGAATATCATGTTGGAAT
2700 GGCCGCTTTTCTGGATTCAACGACTGTGGCCGGCTGGGTGTGGCGGACCGCTATCAGGACATAGCGTTGGATACCCGTGATATTGCTGAAGAGCTTGGCG
2800 GCGAATGGGCTGACCGCTTCCTCGTCTTACGGTATCGCCGCTCCCGATTCCGACGGCATCGCCCTTCTATCGCCCTTCTTGACGAGTTCTTCTGAATTGA
2900 AAAAGGAAGATGAGTATTCAACATTTCCGTTGTCCGCCCTTATCCCTTTTGTGGGCATTTTGCCCTTCCCTGTTTTGTGCTCACCCAGAAACGCTGCTGA

FIG. 10(B) CONT.

3000 AAGTAAAAGATGCTGAAGATCAGTTGGGTGCACGAGTGGGTACATCGAACTGGATCTCAACACGCGGTAAAGATCCTTGAGAGTTTTCGCCCCCGAAGAACG
3100 TTTTCCAATGATGAGCACTTTTAAAGTTCTGCTATGTCTACACTATTATCCCGTATTGACGCCGGGCAAGAGCAACTCGGTGCGCCGGCGGGTATTCTT
3200 CAGAATGACTTGGTTGAGTACTCACCAGTCACAGAAAAGCATCTTACGGATGGCATGACAGTAAGAGAAATTATGCAGTGTCTGCCATAACCATGAGTGATA
3300 ACAC TGGGCCAACTTACTTCTGACAACGATCGGAGGACCGAAGAGCTAACCGCTTTTTTGCACAACATGGGGGATCATGTAACTCGCCTTGATCGTTG
3400 GGAACCGGAGCTGAATGAAGCCATACCAAAACGACGAGAGTGACACCACGATGCCTGTAGCAATGCCAACACGTTGCGCAAACTATTAACTGGCGGAAC TA
3500 CTTACTTAGCTTCCCGGCAACAATTAAATAGACTGGATGGAGCGGGATAAAGTTGCAGGACCACTTCTTGGGCTCGGCCCTTCCGGCTGGCTGGTTTATTG
3600 CTGATAAATCTGGAGCCCGTGAGCGTGGGTCTCGCGGTATCATTTGCAGCACTGGGGCCAGATGGTAAGCCCTCCCGTATCGTAGTTATCTACACGACGGG
3700 GAGTCAGGCAACTATGGATGAACGAAATAGACAGATCGCTGAGATAGGTGCCTCACTGATTAAAGCATTGGTAACTGTCAGACCAAGTTTACTCATATATA
3800 CTTTAGATTGATTTAAACTTCATTTTTAATTAAAGGATCTAGGTGAAGATCCTTTTGTATAATCTCATGACCAAAAATCCCCTTAACGTGAGTTTTCGT
3900 TCCACTGAGCGTCAGACCCCGTAGAAAAGATCAAAGGATCTTCTTGAGATCCTTTTCTGCGCGTAATCTGCTGCTTGCAACAAAAAACCCCGCT
4000 ACCAGCGGTGGTTGTTGCCGGATCAAGAGCTACCAACTCTTTTCCGAAGGTAAC TGGCTTCAGCAGAGCGCAGATACCAATACTGTCTCTTAGTG

FIG. 10(B) CONT.

4100 TAGCCGTAGTTAGCCACCACCTTCAAGAACTCTGTAGCACCGCCTACATACCTCGCTCTGCTAATCCTGTTACCAGTGGCTGCTGCCAGTGGCGATAAGT
TAGCCGTAGTTAGCCACCACCTTCAAGAACTCTGTAGCACCGCCTACATACCTCGCTCTGCTAATCCTGTTACCAGTGGCTGCTGCCAGTGGCGATAAGT
4200 CGTGTCTTACCGGGTTGGACTCAAGACGATAGTTACCGGATAAGCGCAGCGGTGCGGCTGAACGGGGGGTTCGTGCACACAGCCCAGCTTGGAGCGAAC
CGTGTCTTACCGGGTTGGACTCAAGACGATAGTTACCGGATAAGCGCAGCGGTGCGGCTGAACGGGGGGTTCGTGCACACAGCCCAGCTTGGAGCGAAC
4300 GACCTACACCGAACTGAGATACCTACAGCGTGAGCATTTGAGAAAGCGCCACGCTTCCCCAAGGGAGAAAGCGGGACAGGTATCCGGTAAGCGGCAGGGTC
GACCTACACCGAACTGAGATACCTACAGCGTGAGCATTTGAGAAAGCGCCACGCTTCCCCAAGGGAGAAAGCGGGACAGGTATCCGGTAAGCGGCAGGGTC
4400 GGAACAGGAGCGCACGAGGGAGCTTCCAGGGGAAACGCCCTGGTAATCTTTATAGTCCCTGTCGGGTTTCGCCACCTCTGACTTGAGCGTCGATTTTGT
GGAACAGGAGCGCACGAGGGAGCTTCCAGGGGAAACGCCCTGGTAATCTTTATAGTCCCTGTCGGGTTTCGCCACCTCTGACTTGAGCGTCGATTTTGT
4500 GATGCTCGTCAGGGGGCGGAGCCTATGGAAAAACGCCCAGCAACGGGCCCTTTTACGGTTCCTGGCCCTTTTGCTGGCCCTTTTGCTCACATGTTCTTTCC
GATGCTCGTCAGGGGGCGGAGCCTATGGAAAAACGCCCAGCAACGGGCCCTTTTACGGTTCCTGGCCCTTTTGCTGGCCCTTTTGCTCACATGTTCTTTCC
4600 TGCCTATCCCCTGATTCTGTGGATAACCGTATTACCGCCTTTGAGTGAGCTGATACCGCTCGCCGCGAGCCGAACGACCGAGCGAGTCAGTGAGC
TGCCTATCCCCTGATTCTGTGGATAACCGTATTACCGCCTTTGAGTGAGCTGATACCGCTCGCCGCGAGCCGAACGACCGAGCGAGTCAGTGAGC
GAGGAAGCGGAAG --- (SEQ ID NO:46) ---

FIG. 10(B) CONT.

pXL-Bac

AMPCILLIN
RESISTANCE

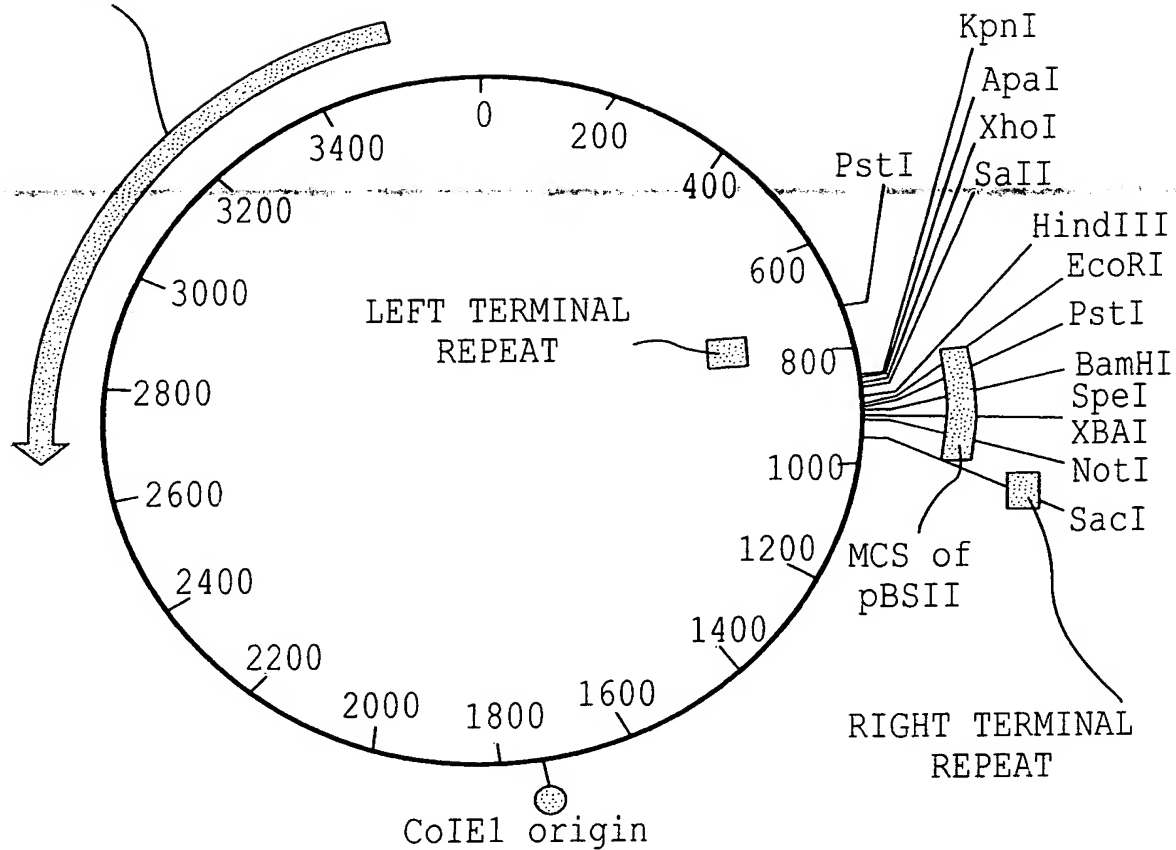


FIG. 11

p(PZ)-Bac-EYFP

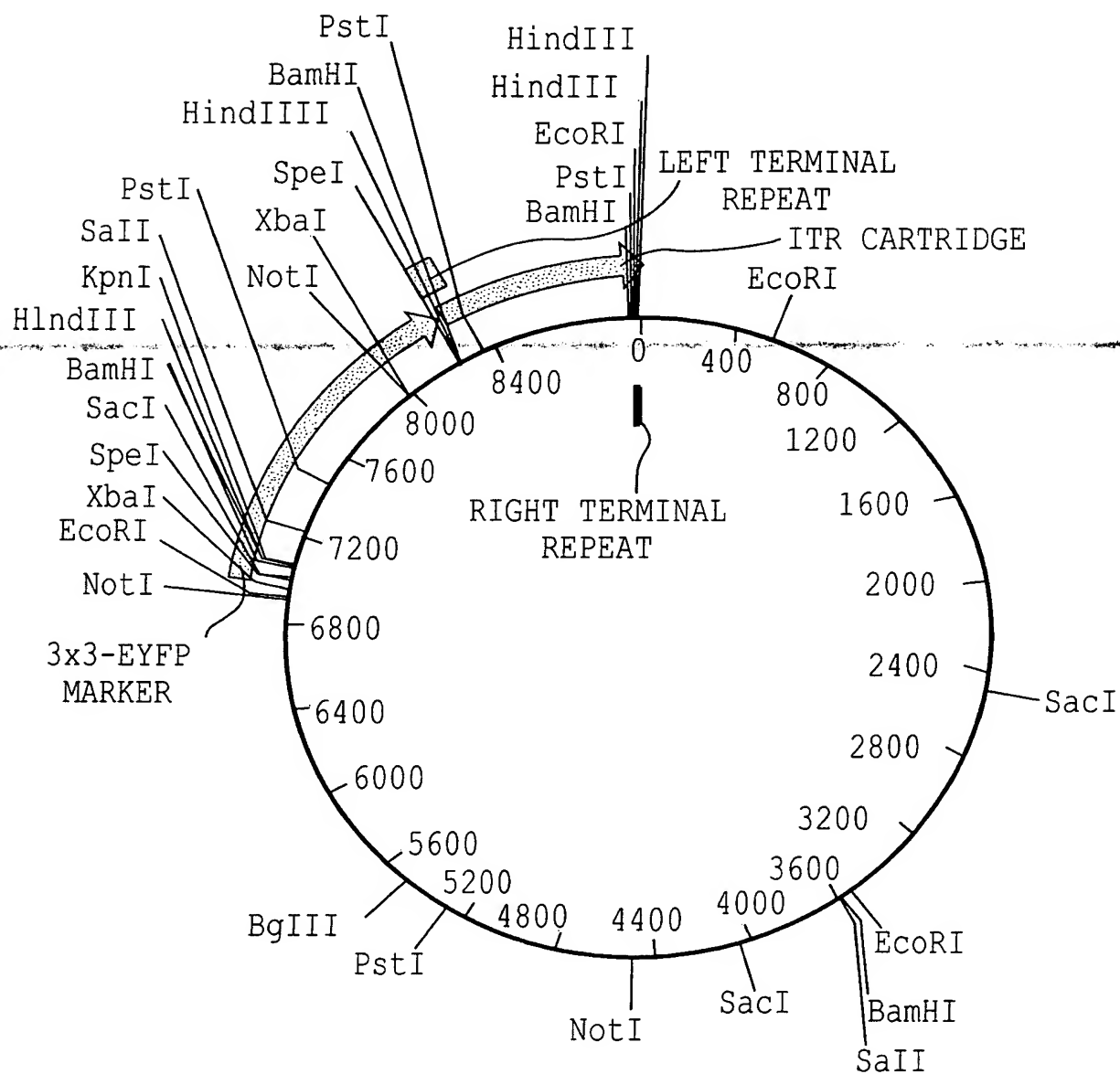


FIG. 12

p (PZ) -Bac-EYFP
Sequence Range: 1 to 8999

100
ACCGAAGTATACACTTAAATTCA GTGCACGTTTGC TTGTGAGAGAAAGGTTGTGTGGGACGAATTTTTTTTGGAAAA CATTAA CCCCTTACGTTGGAAT

200
AAAAAAAATGAAATATTGCAAAATTTGCTGCAAAAGCTGTGACTGGAGTAAAAATTAATTCA CCGTGCCGAAGTGTGCTATTAA GAGAAAAATTGTGGGAGCA

300
GAGCCTTGGGTGCAGCCTTGGTGTGAAAAC TCCCAAATTTGTGATACCCACTTTAATGATTGCGAGTGAAGGCTGCACCTGCAAAAGGTCAGACATTTAAA

400
AGGAGGGGACTCAACGCAGATGCCGTACCTAGTAAAGTGATAGAGCCTGAAC CAGAAAGATAAAAGGCTATACCAGTGGGAGTACACAAAACAGAGT

500
AAGTTTGAATAGTAAAAAAATCATTTATGTAAACAATAACGTGACTGTGCGTTAGGTCCCTGTTCA TTGTTTAA TGAAAAATAAGAGCTTGAGGGAAAAAA

600
TTCGTA CTTTGGAGTACGAAATGCGTCGTTTAGAGCAGCAGCCGGAATTCAC TGGCCGTCGTTTACAA CGTGCTGACTGGGAAAAACCCTGGCGTTACCCCA

700
ACTTAATCGCCCTTGCAGCACATCCCCCTTTTCGCCCAGCTGGCGTAATAGCGAAGAGGCCCGCACCGATCGCCCTTCCCAACAGTTGCGCAGCCCTGAATGGC

800
GAATGGCGCTTTGCCTGGTTTCCGGCAC CAGAGCGGTGCCGGAAGCTGGCTGGAGTGGATCTTCC TGAAGGCCGATACTGTCTGTCCTCCCTCAAACT

900
GGCAGATGCACGGTTACGATGCGGCCCATCTACACCAACGTAACTATCCCATTACGGTCAATCCGCCGTTTGT TCCCACGGAGAA TCCGACGGGTGTGTTA

1000
CTCGCTCACATTTAATGTTGATGAAAGCTGGCTACAGGAAGGCCAGACGGCAATTATTTTTTGATGGCGTTAACTCGGCGTTTCATCTGTGTGCAACGGG

1100
CGCTGGTTCGGTTACGGCCAGGACAGTCGTTTGCCCGTCTGAATTTGACCTGAGCGCAATTTTACGCGCCGGAGAAAA CCGCCTCGCGGTGATGGTGCTGC

FIG. 12(B)

1200 GTTGGAGTGACGGCAGTTATCTGGAAGATCAGGATATGTGGCGGATGAGCGGCATTTCCGTGACGTCTCGTTGCTGCATAAACCGACTACACAAATCAG
1300 CGATTTCCATGTTGCCACTCGCTTTAATGATGATTTTCAGCCCGCGCTGTACTGGAGGCTGAAGTTCAGATGTGCCGGCGAGTTGCGTGACTACTACCGGTA
1400 ACAGTTTCTTATGGCAGGTGAAACGCAGGTCCCGAGCGGCACCGCGCCTTTCCGGCGGTGAATTAATCGATGACGTTGGTGGTTATGCCGATCGCGTCA
1500 CACTACGCTGAACGTCGAAAACCCGAAACTGTGGAGCGCCGAAATCCCGAATCTCTATCGTGGGTGGTTGAAC TGACACACCCCGACGGCACGCTGAT
1600 TGAAGCAGAAGCCTGCGATGTCCGTTTCCGGCAGGTGCGGATTGAAATGGTCTGCTGCTGAACGGCAAGCCGTTGCTGATTTCGAGGGCGTTAACCGT
1700 CACGAGCATCATCCTCTGCA TGGTCAGGTCA GTGATGAGCAGACGATGGTGCAGGATATCCTGCTGATGAAGCAGAACAACTTTAACGCCGTGCGCTGTT
1800 CGCATTA TCCGAACCATCCGCTGTGGTACACGCTGTGGACCCGCTACGGCCTGTATGTGGTGATGAAGCCAATAATTGAAACCCACGGCATGGTGCCAAT
1900 GAATCGTCTGACCGATGATCCGCGCTGGCTACCGCGGATGAGCGAACCGTAACCGGAATGGTGCAGCGCGATCGTAATCACCCGAGTGTGATCATCTGG
2000 TCGCTGGGGAATGAATCAGGCCACGGCGCTAATCACGACCGCGTGTATCGCTGGATCAAATCTGTCGATCCTTCCCGCCCGGTGCAGTATGAAGCGCGG
2100 GAGCCGACACCGGCCACCGATATTATTTGCCCGATGTACCGCGCGGTGGATGAAGACCAGCCCTTCCCGGCTGTGCCGGAATGGTCCATCAAAAAATG
2200 GCTTTCGCTACCTGGAGACGCGCCCGCTGATCCTTTGGCAATACGCCACCGCATGGGTAACAGTCTTGGCGGTTTCGCTAAATACTATGGCAGCGCGTTT
2300 CGTCAGTATCCCCGTTTACAGGGCGGCTTCGTC TGGACTGGGTGGATCAGTCGCTGATTAAATATGATGAAACGGCAACCCGTTGGTCGGCTTACGGCG

FIG. 12(B) CONT.

2400 GTGATTTTGGCGATACGCCGAACGATCGCCAGTTCTGTATGAACGGTCTGGTCTTTGCCGACCGCACGCCGATCCAGCGCTGACGGAAACACCA
 2500 GCAGCAGTTTTCCAGTTCGGTTTATCCGGGCAAAACCATCGAAGTGACCAGCGAATACCTGTTCCGTCAATAGCGATAACGAGCTCCTGCACTGGATGGTG
 2600 GCGCTGGATGGTAAGCCGCTGGCAAGCGGTGAAGTGCCTCTGGATGTGCTCCACAAGGTAAACAGTTGATTGAACTGCCTGAACTACCCGCAGCCGGAGA
 2700 GCGCCGGGCAACTCTGGCTCACAGTACGGCTAGTGCAACCGAACCGACCGCATGGTCAGAAAGCCGGGCACATCAGCGCCTGGCAGCAGTGGCGTCTGGC
 2800 GGAAACCTCAGTGTGACGCTCCCCCGCGCTCCACGCCATCCCGCATCTGACCCACCAGCGAAATGGATTTTGCATCGAGCTGGGTAATAAGCGTTGG
 2900 CAATTTAACCGCCAGTCAGGCTTCTTTACAGATGTGGATTGGCGATAAAACAACACTGCTGACGCGCTGCGCGATCAGTTCACCCGTGCACCCGTGG
 3000 ATAACGACATTGGCGTAAGTGAAGCGACCCGCAATTGACCCTAACGCCTGGGTGGAACGCTGGAAGGGGGGCCCATTACCAGCCGGAAGCAGCGTTGTT
 3100 GCAGTGCACGGCAGATACACTTGCTGATGCGGTGCTGATTACGACCGCTCACGCGTGGCAGCATCAGGGGAAACCTTATTTATCAGCCGGAACCTAC
 3200 CCGATTGATGGTAGTGGTCAAATGGCGATTACCGTTGATGTTGAAGTGGCGAGCGATACACCGCATCCGGCGCGGATTGGCCTGAACCTGCCAGCTGGCGC
 3300 AGGTAGCAGAGCGGTAACTGGCTCGGATTAGGGCCGCAAGAAACTATCCCGACCGCCTTACTGCCGCCTGTTTACCGCTGGGATCTGCCATTGTC
 3400 AGACATGTATACCCCGTACGTCTTCCCGAGCGAAACCGTCTGCGCTGCGGACGCGCGAATTGAATTATGGCCACACCCAGTGGCGGCGGCACTTCCAG
 3500 TTCAACATCAGCCGTACAGTCAACAGCAACTGATGGAAACCAAGCCATCGCCATCTGCTGCACGCGGAAGGCCACATGGCTGAATATCGACGGTTTCC

FIG. 12(B) CONT.

3600 ATATGGGGATTGGTGGCGACGACTCCTGGAGCCCGTCAGTATCGGGGGAATCCAGCTGAGCGCCGGTCGCTACCATTACCAGTTGGTCTGGTGTCTGGGG
3700 ATCCGTCGACTAAGGCCAAAGAGTCTAATTTTGTTCATCAATGGGTATAACATAATGGGTATATTATAAGTTGTTTTAAGTTTTTGAAGACTGATAAG
3800 AATGTTTCGATCGAATATTCCATAGAACACAATAGTATTACCTAATTACCAAGTCTTAATTTAGCAAAAATGTTATTGCTTATAGAAAAATAAATTAT
3900 TTATTTGAAATTTAAAGTCAACTTGTCAATTTAATGTCTTGTAGACTTTTGAAGTCTTACGATACAATTAGTATCTAAATATACATGGGTTTCATTCTACAT
4000 TCTATATTAGTGATGATTTCTTTAGCTAGTAATACATTTTAATTATATTTCGGCTTTGATGATTTTCTGATTTTTTCCGGAACGGATTTTCGTAGACCCCTT
4100 CGATCTCATAATGGCTCATTTTATTGCGATGGACGGTCAGGAGAGCTCCACTTTTGAATTTCTGTTCGCAGACACCCGCAATTTGTAGCACATAGCCGGGAC
4200 ATCCGGTTTGGGGAGATTTTCCAGTCTCTGTGTGCAATTGGTTTTTCGGGAATGCGTTGCAGGGCGCATACGCTCTATATCCTCCGAACGGCGCTGGTTGACC
4300 CTAGCATTTACATAAGGATCAGCAGCAAAATTTGCCTCTGCTTCATTGCCCGGAATCACAGCAATCAGATGTCCCTTTCGGTTACGATGGATATTTCAGGT
4400 GCGAACCGCACACAAAGCTCTCGCCGCACACTCCACACTGATATGGTCGCTCGCCCTGTGGCGCCGCATATGGATCTTTAAGGTCGTTGGACTGCACAAAG
4500 CTCCTTGCTGCACATTTTGCAGGAGTACGGCCTTTGACCCGTGTGCAATCGCATGTGTGCGGCCACGCTTGTCTCGGAAATAAATCTTCTTGAGCAGATGC
4600 GGCGCCCGGGGTGGCGAAGAACTCCAGCATGAGATCCCCCGCGCTGGAGGATCATCCAGCCGGCTCCCGGAAACGATTCGGAAGCCCAACCTTTTCAT
4700 AGAAGCGCGGTGGAATCGAAATCTCGTGATGGCAGGTTGGCGGTTCGCTTGGTCGGTCAATTCGAACCCACAGATCCCGCTCAGAAAGAACTCGTCAAGA

FIG. 12(B) CONT.

4800
AGCGGATAGAAGCGGATGCGCTGCGAATCGGGAGCGGGCGGATACCGTAAAGCACGAGGAAGCGGTACGCCCATTCGCCGCCCAAGCTCTTCAGCAATATCAC
4900
GGGTAGCCAAACGCTATGTCTCTGATAGCGGTCCGGCTCCGCCACACCCAGCCGGCCACACAGTCGATGAATCCAGAAAAGCGGCCAATTTCCACCATGATATTCGGCAA
5000
GCAGGCATCGCCATGGGTACGACGAGATCCTCGCCCGTCGGGGCATGCGCGCCTTGAGCCTGGCGAACAGTTCGGCTGGCGCGAGCCCCCTGATGCTCTTCG
5100
TCCAGATCATCCTGATCGACAAGACCGGCTTCCATCCGAGTACGTGCTCGCTCGATGCGATGTTTCGCTTGGTTCGAATGGGCAGGTAGCCGGGATCAA
5200
GGGTATGCAGCCGCCGCAATTGCATCAGCCATGATGGATACTTTCTCGGCAGGAGCAAGGTGAGATGACAGGAGATCCTGCCCCCGGCACCTTCGCCCAATAG
5300
CAGCCAGTCCCTTCCCGCTTCAGTGACAACGTTCGAGCACAGCTGCGGCAAGGAACGCCCGCTCGTGGCCAGCCACGATAGCCGGGCTGCCCTCGTCCCTGCAGT
5400
TCATTCAGGGCACCGGACAGGTTCGGTCTTGACAAAAGAACCGGGCGCCCTTGGCTGACAGCCGGGAACACGGCGGCATCAGAGCAGCCGATTGTCTGTT
5500
GTGCCCAGTCATAGCCGAATAGCCTCTCCACCCCAAGCGGCCGGAGAACCTGCGTGCAATCCATCTTGTTCAATCATGCGGAAACGATCCCTCATCCTGTCTC
5600
TTGATCAGATCTTGATCCCCCTGGGCCATCAGATCCTTGGCGGCAAGAAAGCCATCCAGTTTACTTTGCAGGGCTTCCCAACCTTACCAGAGGGCGCCCCA
5700
GCTGGCAATTCCGGTTCGCTGTCCATAAAACCGCCCCAGTCTAGCTATCGCCCATGTAGCCCACTGCAAGCTACCTGCTTCTCTTTGCGCTTGCGT
5800
TTTCCCTTGTCAGATAGCCCAGTAGCTGACATTTCATCCGGGGTCAGCACCGTTTCTCGGGACTGGCTTCTACGTTCTACGTTCCGCTTCCCTTTAGCAGCCCTT
5900
GCGCCCTGAGTGCTTGGCGCAGCGTGAAGCTAATTTCATGGTTATAAATTTTGTAAATCAGCTCAATTTTAAACCAATAGGCCGAAATCGGCCAAAATCC

FIG. 12(B) CONT.

6000 CTTATAAATCAAAGAATAGCCGAGATAGGTTGAGTGTGTTCCAGTTTGGAAACAAGAGTCCACTATTAAAGAACGTGGACTCCAACGTCAAAGGGCG
6100 AAAAACCGTCTATCAGGGCGATGGCCGATCAGCTTATGCGGTGTGAAATACCGCACAGATCGGTAAGGAGAAATACCGCATCAGGCGCTCTTCCGCTT
6200 CCTCGCTCACTGACTCGCTCGGCTCGGCTGCGGCGAGCGGTATCAGCTCACTCAAAGGGGTAATACGGTTATCCACAGAAATCAGGGGATAA
6300 CGCAGGAAGAACATGTGAGCAAAGGCCAGCAAAAGCCAGGAACCGTAAAAAAGCCCGCTTGCTGGCGTTTTCATAGGCTCCGCCCCCTGACGAG
6400 CATCACAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAAGATACCAGGCGTTTCCCCCTGGAAGCTCCCTCGTGGCTCTCCTG
6500 TTCCGACCCCTGCCGCTTACCGGATACCTGTCCGCCCTTCTCCCTTCGGGAAGCGTGGCGCTTCTCATAGCTCACGCTGTAGGTATCTCAGTTCGGGTGTA
6600 GGTGTTCCGCTCCAAGCTGGGCTGTGTGACGAACCCCCGTTACAGCCCGACCGCTGCGCCTTATCCGGTAACATATCGTCTTGAGTCCAACCCGGTAAGA
6700 CACGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGCGGTGCTACAGAGTCTTGAAGTGGTGGCTAACTACG
6800 GCTACACTAGAAGGACAGTATTGGTATCTGCGCTCTGCTGAGCCAGTTACCTTCGGAAAAAGAGTTGGTAGCTCTTGATCCGGCAACAAACCCCGC
6900 TGGTAGCGGCGGTTTTTTGTTGCAAGCAGCAGATTACCGCGAGAAAAAGGATCTCAAGAAGATCCTTTGATCTTTTCTTACTGAACGGTGATCCCCA
7000 CCGGAATTGCGGCGCGGAATTCTCATGTTTGACAGCTTATCATCGATAAGCTGGCCGCTCTAGAACTAGTGTCCACAAATGGTTAATTCGAGCTCGCC
3XP3-EYFP MARKER >
7100 CCGGGATCTAATTCAATTAGAGACTAATTCAATTAGAGCTAATTCAATTAGGATCCAAAGCTTATCGATTTCGAACCCCTCGACCCCGGAGTATAAATAGA
3XP3-EYFP MARKER >

FIG. 12(B) CONT.

7200
 GCGCTTCGTCTACGGAGCGACAATTCAATTCAAACAAGCAAAAGTGAACACGTCGCTAAGCGAAAGCTAAGCAAATAAACAAGCGCAGCTGAACAAGCTA
 3XP3-EYFP MARKER >

7300
 AACAAATCGGGGTACCGCTAGAGTCGACGGTACGATCCACCGGTGCGCCACCATGGTGAGCAAGGGCGGAGGAGCTGTTCAACGGGGTGGTGCCCATCCTGGT
 3XP3-EYFP MARKER >

7400
 CGAGCTGGACGGCGACGTAAACGGCCACAAGTTCAGCGTGTCCGGCGAGGGCGGCGGATGCCACCTACGGCAAGCTGACCCCTGAAGTTCATCTGCAACC
 3XP3-EYFP MARKER >

7500
 ACCGGCAAGCTGCCCCGTGCCCTGGCCCCACCCTCGTGACCACTTCGGCTACGGCCTGCAGTGCTTCGCCCGCTACCCCCGACCACATGAAGCAGCAGCAGCT
 3XP3-EYFP MARKER >

7600
 TCTTCAAGTCCGCCATGCCCGAAGGCTACGTCCAGGAGCGCACCATCTTCTTCAAGGACGACGGCAACTACAAGACCCGCGGAGGTGAAGTTCGAGGG
 3XP3-EYFP MARKER >

7700
 CGACACCCCTGGTGAACCCGCATCGAGCTGAAGGCGATCGACTTCAAGGAGGACGGCAACATCCTGGGGCACAAAGCTGGAGTACAACTACAACAGCCACAAC
 3XP3-EYFP MARKER >

7800
 GTCTATATCATGGCCGACAAACAGAAAGACGGCATCAAGGTGAACCTTCAAGATCCGCCCAACATCGAGGACGGCAGCGTGCAGCTCGCCCGACCACTACC
 3XP3-EYFP MARKER >

7900
 AGCAGAACACCCCATCGGCGACGGCCCCGTGCTGTGCCCGACAAACCACTACCTGAGCTACCACTCGCCCTGAGCAAGACCCCAACGAGAAGCGCGGA
 3XP3-EYFP MARKER >

8000
 TCACATGGTCTGCTGGAGTTCGTGACCGCCGCCGGGATCACTCTCGGCATGGACGAGCTGTACAAGTAAGCGGCGCGGACTCTAGATCATAATCAGCC
 3XP3-EYFP MARKER >

FIG. 12(B) CONT.

8100 ATACCACATTTGTAGAGGTTTACTTGCTTTAAAAAACCTCCACACCTCCCCCTGAACCTGAAACATAAAATGAATGCAATTGTTGTTAACTTGTT
3XP3-EYFP MARKER >
8200 TATTGCAGCTTATAATGTTACAAATAAAGCAATAGCATCACAAATTTTCACAAATAAAGCATTTTTTTTCACTGCAATCTAGTTGTGGTTGTCCAAACATC
3XP3-EYFP MARKER >
8300 ATCAATGTATCTTAAAGCTTATCGATACGGCTACGGCACTAGTGGATCCCATGCGTCAATTTTACGCATGATTATCTTTAACGTACGTACACAATATGATT
< LEFT TERMINAL REPEAT >
3XP3-EYFP MARKER >
8400 ATCTTTCTAGGGTTAATCTAGCTGCGTGTTCTGCAGCGTGTGAGCATCTTTCATCTGCTCCATCAGCGTGTAAACACATTTGCACCGCGGAGTCTGCCCG
<
8500 TCCTCCACGGGTTCAAAAACGTGAATGAACGAGCGCGCGCGCGGGTAACCTACGGGGTATCCATGTCCATTTCTGCGGCATCCAGCCAGGATACCCGT
8600 CCTCGCTGACGTAATATCCCAGCGCGCCGACCGCTGTCAATTAATCTGCACACCGGCACGGCAGTTCCGGCTGTCCGGGTATTGTTCCGGGTGCTGATGCG
8700 CTTCCGGGTGACCATCCGGAACTGTGTCCGGAAAGCCCGACGAACTGGTATCCCAGGTGGCCTGAACGACAGTTACCCGTTAAAGGCGTGCATGGCC
8800 ACACCTTCCCGAATCATATGGTAAACGTGCGTTTTTCGCTCAACGTCAATGCAGCAGCAGTCACTCCTCGGCAAACTCTTTCCATGCCGCTTCAACCTCGC
8900 GGGAAAAGGCACGGGCTTCTTCTCCCGATGCCCAGATAGCGCCAGCTTGGGGCGATGACTGAGCCGGGAAAAAGACCCGACGATATGATCCTGATGCAG
CTAGATTAAACCCTAGAAAGATAGTCTGCGGTAAAAATTACGCGCATGGGATCCCCCGGGCTGCAGGAATTCGATATCAAGCTTATCGATACCGTCGAAGCTT
< RIGHT TERMINAL REPEAT >
--(SEQ ID NO:48)--

FIG. 12(B) CONT.

p(PZ)-Bac-ECFP

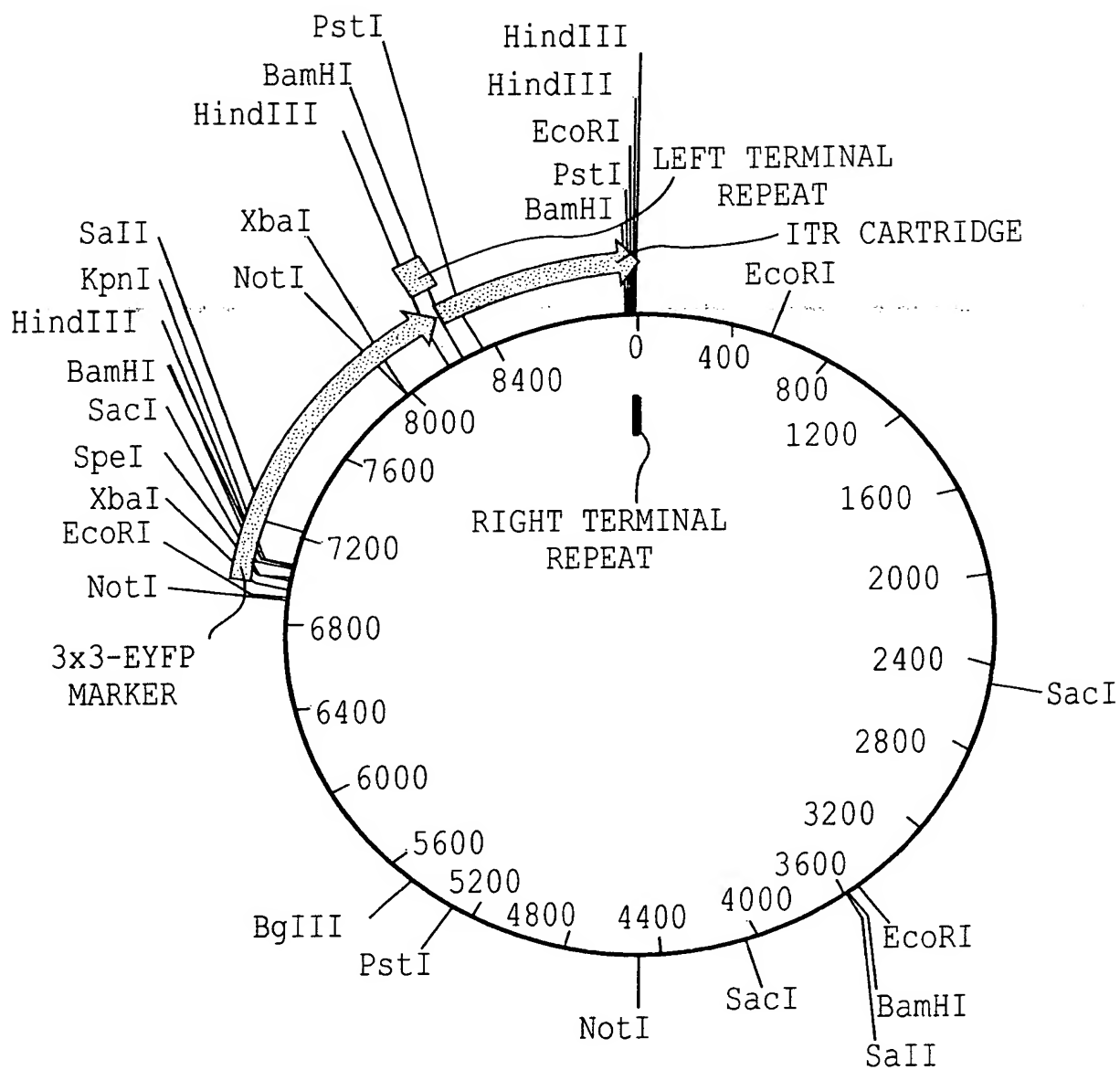


FIG. 13A

p(PZ)-Bac-ECFP
Sequence Range: 1 to 9012

100
ACCGAAGTATACACTTAAATTCAAGTGCACGTTTGCTTGTTGACAGGAAAGGTTGTGTGGGACGAATTTTTTTTGAACATTAACCCCTTACGTGAAT

200
AAAAAAAATGAAATATTGCAAAATTTTGCTGCAAGCTGTGACTGGAGTAAATTAATTCACGTGCCGAAGTGTGCTATTAAAGAAAAATTGTGGGAGCA

300
GAGCCTTGGGTGCAGCCTTGGTGAAAACCTCCCAAAATTTGTGATACCCACTTTAATGATTCCGACGTGGAAGGCTGCACCTGCAAAAGGTGAGACATTTTAAA

400
AGGAGGGGACTCAACGCAGATGCCCGTACCTAGTAAGTATAGAGCCTGAACCAGAAAAAGATAAAAGAGGCTATACCAGTGGGAGTACACAAAACAGAGT

500
AAGTTGAATAGTAAAAAAATCAATTTATGTAAACAATAACGTGACTGTGCGTTAGGTCCTGTTCAATTGTTAATGAAAAATAAGAGCTTGAGGGAAAAAA

600
TTCGTACTTTGGAGTACGAAATGCGTCGTTTAGAGCAGCAGCCGAAATTCACCTGGCCGTCGTTTACACGTCGTGACTGGGAAAACCCCTGGCGTTACCCA

700
ACTTAATCGCCTTGACGACATCCCCCTTTTCGCCAGCTGGCGTAATAGCGAAGAGGCCCGCACCGATCGCCCTTCCCAACAGTTGCGCAGCCTGAAATGGC

800
GAATGGCGCTTTGCCCTGGTTTCCGGCACCAAGAAGCGGTGCCGGAAGCTGGCTGGAGTCCGATCTTCCCTGAGGCCGATACTGTCTCGTCCCCCTCAAACCT

900
GGCAGATGCACGGTTACGATGGCCCCATCTACACCAACGTAACCTATCCCATTACGGTCAATCCGCCGTTTGTTCGCCACGGAGAAATCCGACGGGTGTGTTA

1000
CTCGCTCACATTTAATGTTGATGAAAGCTGGCTACAGGAAGGCCAGACGCGAATTAATTTTGTATGGCGTTAACTCGGCCGTTTCATCTGTGGTGCAACGGG

1100
CGCTGGGTGGTTACGGCCAGGACAGTCGTTTGCCCGTCTGAATTTGACCTGAGCGCATTTTACGCGCCGAGAAAAACCGCCTCGCGGTGATGGTGCTGC

FIG. 13(B)

1200 GTGGAGTGACGGCAGTTATCTGGAAGATCAGGATATGTGGCGGATGAGCGCATTTTCCGTGACGTCTCGTTGCTGCATAAACCGACTACACAAATCAG
1300 CGATTTCCATGTTGCCACTCGCTTTAATGATGATTTCAGCCCGCGCTGTA CTGGAGGCTGAAGTTCAGATGTGCGGCGAGTTGCGTGACTACCTACGGGTA
1400 ACAGTTTCTTTATGGCAGGGTGAAACGCAGGTCCGCCAGCGCACCGCGCCCTTTCGGCGGTGAAATTATCGATGAGCGTGGTGGTTATGCCGATCGCGGTCA
1500 CACTACGCTGAACGTCGAAAACCCGAAACTGTGGAGCGCCGAAATCCCGAATCTCTATCGTCCGTGGTTGAACTGCACACCCGCCGACGGCACGCTGAT
1600 TGAAGCAGAAGCCTGCGATGTCGGTTTCCGCGAGGTGCGGATTGAAAAATGGTCTGCTGCTGCTGAACGGCAAGCCGTTGCTGATTCGAGGCGTTAACCGT
1700 CACGAGCATCATCCTCTGCATGGTCAGGTCATGGATGAGCAGACGATGGTGCAGGATATCCTGCTGATGAAGCAGAACAACTTTAACGCCGTGCGCTGTT
1800 CGCATTATCCGAACCATCCGCTGTGGTACACGCTGTGGACCCGTACGGCCCTGTATGTGGTGATGAAGCCAATATTGAAACCCACGGCATGGTGCCAAT
1900 GAATCGTCTGACCGATGATCCGGCGTGGCTACCGCGCATGAGCGAACCGGTAACGGGAATGGTGCAGCCCGATCGTAATCACCCGAGTGTGATCATCTGG
2000 TCGCTGGGGAATGAATCAGGCCACGGCGCTAATCACGACGCGCTGTATCGCTGGATCAAAATCTGTCTGATCCCTTCCCGCCCGGTGCAGTATGAAGGCGGCG
2100 GAGCCGACACCGGCCACCGATATTATTGCCCGATGTACGCGCGCGGTGGATGAAGACACGCCCTTCCCGGCTGTGCCGAAAATGGTCCATCAAAAAATG
2200 GCTTTCGCTACCTGGAGAGACGCGCCCGCTGATCCTTTGCCAATACGCCCCACCGCATGGGTAACAGTCTTGGCGGTTTCGCTAAATACTGGCAGGCGTTT
2300 CGTCAGTATCCCCGTTTACAGGGCGGCTTCGCTCTGGGACTGGGTGGATCAGTCGCTGATTAATATGATGAAAACGGCAACCCGTGGTTCGGCTTACGGCG

FIG. 13(B) CONT.

2400 GTGATTTTGGCGGATAGCCCGAACGATCGCCAGTTCTGTATGAAGGTCTGGTCTTTGCCGACCGCACGCCGATCCAGCGCTGACGGAGCAAAACACCA
2500 GCAGCAGTTTTCAGTTCGTTTATCCGGGCAACCATCGAAGTGACCAAGCAATACCTGTTCCGTATAGCGATAACGAGCTCCTGCACTGGATGGTG
2600 GCGCTGGATGTAAGCCGCTGGCAAGCGGTGAAGTGCCTCTGGATGTCGCTCCACAAGTTAAACAGTTGATTGAACTGCCTGAAC TACCGCAGCCGGGAGA
2700 GCGCCGGGCAACTCTGGCTCACAGTACGCGTAGTGCAACCGAACGCGACCGCATGGTCAGAAAGCCGGGCACATCAGCGCCTGGCAGCAGTGGCGTCTGGC
2800 GGAAACCTCAGTGTGACGCTCCCCGGCCGCTCCACGCCATCCCGCATCTGACCACCAGCAAAATGGATTTTTCATCGAGCTGGGTAATAAGCGTTGG
2900 CAATTAAACCGCCAGTCAGGCTTTCCTTTCACAGATGTGGATTGGCGATAAAAAACAAC TACTGTCAGCCCGCTGCGCGATCAGTTACCCGTGACCCGCTGG
3000 ATAACGACATTGGCGTAAGTGAAGCAGCCCGCATTGACCCCTAACGCCCTGGGTGGAACGCTGGAAGCGCGGGCCATTACCAGGCCGAAGCAGCGTTGTT
3100 GCAGTGCACGGCAGATACACTTGCTGATGCGGTGCTGATTACGACCGCTCACGCGTGGCAGCATCAGGGGAAAACCTTATTTATCAGCCGGAAAACCTAC
3200 CGGATTGATGGTAGTCAAATGGCGATTACCGTTGATGTTGAAGTGGCGAGCGATACACCGCATCCGGCGCGGATTGGCCCTGAAC TGCCAGCTGGCGC
3300 AGGTAGCAGAGCGGTAAACTGGCTCGGATTAGGGCCGCAAGAAAATA TCCCGACCGCCTTACTGCCGCCCTGTTTTCACCGCTGGGATCTGCCATTGTC
3400 AGACATGTATACCCCGTACGTCTTCCCGAGCGAAAACGGTCTGCGCTGCGGACGCGCGGAATTGAATTATGGCCCAACACCACTGGCGGCGGACTTCCAG
3500 TTCAACATCAGCCGCTACAGTCAACAGCAACTGATGGAAACCAGCCATCGCCATCTGTCACGCGGAAGGACACATGGCTGAATATCGACGGTTTCC

FIG. 13(B) CONT.

3600
ATATGGGGATTGGTGGCGACGACTCCTGGAGCCCGTCAGTATCGGGCGGAATCCAGCTGAGCGCGGTCCGTACCATTACCAGTTGGTCTGGTGTCTGGGG
3700
ATCCGTCGACTAAGGCCAAAGAGTCTAATTTTGTTCATCAATGGGTATAACATAATGGGTATATATAAGTTTGTTTAAGTTTTTGAGACTGATAAG
3800
AATGTTTCGATCGAATATCCATAGAACAAACAATAGTATTACCTAATTACCAAGTCTTAATTTAGCAAAAATGTTATTGCTTATAGAAAAATAAATTAT
3900
TTAATTGAAATTTAAAGTCAACTGTCTAATTAATGTCTTGTAGACTTTTGAAAGTCTTACGATACAATTAGTATCTAATAATACATGGGTTCATTCTACAT
4000
TCTATATTAGTGATGATTTCTTTAGCTAGTAATACATTTTAATTAATTTCGGCTTTTGATGATTTTCTGATTTTTTCCGAACGGATTTTCGTAGACCCCTTT
4100
CGATCTCATAAATGGCTCATTTTATTGCGATGGACGGTCAGGAGAGCTCCACTTTTGAATTTCTGTTCGAGACACCGCATTTGTAGCACATAGCCGGGAC
4200
ATCCGGTTTGGGGAGATTTCCAGTCTCTGTGCAATTGGTTTTCGGGAATGCGTTGCAGGCGCATACGCTCTATATCCTCCGAACGGCGCTGGTTGACC
4300
CTAGCATTTACATAAGGATCAGCAGCAAAAATTTGCCCTCTGCTTCATTGCCCGGAATCACAGCAATCAGATGTCCCTTTCCGGTTACGATGGATATTCAGGT
4400
GCGAACCGCACACAAAGCTCTCGCCGCACACTCCACACTGATATGGTCGCTCGCCCTGTGGCGCCGCATATGGATCTTAAGGTCGTTGGACTGCACAAAG
4500
CTCTTGCTGCACATTTTGCAGGAGTACGGCCTTTGACCCGTGTGCAATCGCATGTGTGCGGCCAGCTTGTTCTGCGAAATAAACTTCTTGGAGCAGATGC
4600
GGCCGCCCGGGTGGCGGAAGAACTCCAGCATGAGATCCCCCGCGCTGGAGGATCATCCAGCCGGCTCCCCGAAAAACGATTCCGAAGCCCCAACCTTTTCAT
4700
AGAAGCGCGGTGGAATCGAAATCTCGTGATGGCAGGTTGGCGGTGCGCTTGGTCGGTCATTTCGAACCCCGAGAGTCCCCGCTCAGAAGAACTCGTCAAGA

FIG. 13(B) CONT.

4800 AGCGGATAGAAAGCGGATGCGCTGCGAATCGGGAGCGGGGATACCGTAAAGCACGAGGAAGCGGTGAGCCCATTCGCCGCCAAGCTCTTCAGCAATATCAC
4900 GGTAGCCAAACGCTATGTCTGATAGCGGTCCGCCACACCCAGCCGGCCACAGTCGATGAATCCAGAAAGCGGCCATTTTCCACCATGATATTCGGCAA
5000 GCAGGCATCGCCATGGGTACGACGAGATCCTCGCCGTTCGGGATCGGGCATGGCGGCCTTGAGCCTGGCGAACAGTTGCGGTGGCGGAGCCCCCTGATGCTCTTCG
5100 TCCAGATCATCCTGATCGACAAAGACCGGCTTCCATCCGAGTACGTGCTCGCTCGATGCGATGTTTCGCTTGGTGGTCGAATGGGCAGGTAGCCGGATCAA
5200 GCGTATGCAGCCGCCGCATTGCATCAGCCATGATGGATACTTCTCGGCAGGAGCAAGGTGAGATGACAGGAGATCCTGCCCGGCAC TTCGCCCAATAG
5300 CAGCCAGTCCCTTCCCGCTTCAGTGACAACGTCGAGCACAGCTGGCGCAAGGAACGCCCGTCGTGGCCAGCACGATAGCCGCGCTGCCCTCGTCCCTGCAGT
5400 TCATTGAGGGCACCGACAGGTCGGTCTTGACAAAAAAGAACCGGGGGCCCCCTGGCTGACAGCCGGAACACGGCGGCATCAGAGCAGCCGATTGTCTGT
5500 GTGCCCAGTCATAGCCGAATAGCCTCTCCACCCAGCGGGCCGAGAACCTGCGTGCAATCCATCTTGTTCAATCATGCGAAACGATCCTCATCTCTCTC
5600 TTGATCAGATCTTGATCCCCCTGCGCCATCAGATCCTTGGCGGCAAGAAAGCCATCCAGTTACTTTGCAGGGCTTCCCAACCTTACCAGAGGGCGCCCCA
5700 GCTGGCAATTCCGGTTCCGCTTGCTGTCCATAAAACCGCCCCAGTCTAGCTATCGCCCATGTAGCCCCACTGCAAGCTACCTGCTTCTCTTTGCGCTTGCGT
5800 TTTCCCTTGTCACAGATAGCCCAGTAGCTGACATTATCCGGGGTCAGCACCGTTTCTGCGGACTGGCTTCTACGTGTTCCGCTTCCCTTTAGCAGCCCCCT
5900 GCGCCCTGAGTGCTTGCGGCAGCGTGAAGCTAATTCAATGGTTATAAATTTTGTAAATCAGCTCATTTTTTAACCAATAGGCCGAAATCGGCAAAATCC

FIG. 13(B) CONT.

```

6000 CTTATAAATCAAAGAATAGCCCGAGATAGGGTTGAGTGTGTTCCAGTTTGGAAACAAGAGTCCACTATTAAAGAACGTGGACTCCAACGTCAAAGGGCGG
6100 AAAAACCGTCTATCAGGGCGATGGCCGGATCAGCTTATGCGGTGTGAATACCGCACAGATGCGTAAGGAGAAAATACCGCATCAGGGCGTCTTCCGGCTT
6200 CCTCGCTCACTGACTCGCTCGGCTCGGTTCGGCTGCGGCGAGCGGTATCAGCTCACTCAAAGGCGGTAATACGGTTATCCACAGAAATCAGGGGATAA
6300 CGCAGGAAAGACATGTGAGCAAAGGCCAGCAAAGGCCAGGAACCGTAAAAAGGCCGCGTTGCTGGCGGTTTTTCCATAGGCTCCGCCCCCTGACGAG
6400 CATCACAAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAAGATACCAGGCGTTTCCCCCTTGGAAAGCTCCCTCGTGGCGCTCTCCTG
6500 TTCCGACCCCTGCCGCTTACCGGATACCTGTCCGCTTCTCCCTTCGGGAAGCGTGGCGCTTCTCATAGCTCAGGCTGTAGGTATCTCAGTTCCGGTGTA
6600 GGTGCTTCCGCTCCAAGCTGGGCTGTGTGCAGAACCCCCCGTTCAGCCCCGACCGCTGCGCCTTATCCGGTAACTATCGTCTTGAGTCCAAACCCGGTAAGA
6700 CACGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGCGGTGCTACAGAGTTCTTGAAGTGGTGGCCTAACTACG
6800 GCTACACTAGAAGGACAGTATTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGGAAAAAGAGTTGGTAGCTCTTGATCCGGCAAACAACCCACCGC
6900 TGGTAGCGCGGGTTTTTTTGTGCAAGCAGCAGATTACGGCGCAGAAAAAAGGATCTCAAGAAGATCCCTTTGATCTTTCTTACTGAACGGTGATCCCCCA
7000 CCGGAATTGCGGCGCGGGAATTCTCATGTTTGACAGCTTATCATCGATAAGCTGGCCGCTCTAGAACTAGTGTCCCACAATGGTTAATTCGAGCTCGCC
3XP3-EYFP MARKER >
7100 CGGGGATCTAATTCAATTAGAGACTAATTCAATTAGAGCTAATTCAATTAGGATCCAAGCTTATCGATTTCGAACCCCTCGACCGCGGAGTATAAATAGA
3XP3-EYFP MARKER >

```

FIG. 13(B) CONT.

7200
GGCGCTTCGTCTACGGAGCGACAATTCAATTCAAACAAGCAAAAGTGAACACGTCGCTAAGCGAAAGCTAAGCAAATAACAAGCGCAGCTGAACAAGCTA
3XP3-EYFP MARKER >

7300
AACAAATCGGGGTACCGCTAGAGTCGACGGTACGATCCACCGGTGCGCCACCATGCTGAGCAAGGGCGAGGAGCTGTTACCGGGGTGGTGCCCATCCTGGT
3XP3-EYFP MARKER >

7400
CGAGCTGGACGGCGACGTAAACGGCCACAAGTTCAGCGGTGTCGGGGGAGGGCGAGGGCGATGCCACCTACGGCAAGCTGACCCCTGAAGTTCATCTGCACC
3XP3-EYFP MARKER >

7500
ACCGGCAAGCTGCCCCGTGCCCTGGCCCCACCCTCGTGACCAACCTGACCTGGGGCGTGCAGTGCTTCAGCCGCTACCCCGACCACATGAAGCAGCAGCACT
3XP3-EYFP MARKER >

7600
TCTTCAAGTCCGCCCATGCCCGAAGGCTACGTCCAGGAGCGCACCATCTTCTCAAGGACGACGGCAACTACAAGACCCCGCGGAGGTGAAGTTCGAGGG
3XP3-EYFP MARKER >

7700
CGACACCCCTGGTGAACCGCATCGAGCTGAAGGGCATCGACTTCAAGGAGGACGGCAACATCCTGGGGCCACAAGCTGGAGTACAACCTACATCAGCCACAAC
3XP3-EYFP MARKER >

7800
GTCTATATCACCGCCGACAAGCAGAAGAACGGCATCAAGGCCAACTTCAAGATCCGCCACAACATCGAGGACGGCAGCGTGCAGCTCGCCGACCACTACC
3XP3-EYFP MARKER >

7900
AGCAGAACACCCCCATCGGGGACGGCCCCGTGCTGTGCCCGGACAACCACTACCTGAGCACCCAGTCCGCCCTGAGCAAAGACCCCCAACGAGAAGCGCGGA
3XP3-EYFP MARKER >

8000
TCACATGGTCTGCTGGAGTTCGTGACCGCCCGCGGATCACTCTCGGCATGGACGAGCTGTACAAGTAAAGCGCGCGGCACTCTAGATCATATAATCAGCC
3XP3-EYFP MARKER >

FIG. 13(B) CONT.


```

8100 ATACCACATTGTAGAGTTTACTTGCTTTAAAAAACCTCCACACACCTCCCCCTGAACCTGAAACATAAAATGAATGCAATTGTTGTTAACTTGT
      3XP3-EYFP MARKER >
8200 TATTGCAGCTTATAATGGTTACAAATAAAGCAATAGCATCACAAAATTTACAAAATAAAGCATTTTTTTTCACTGCATTCTAGTTGTGTTGTCCAAACTC
      3XP3-EYFP MARKER >
8300 ATCAATGTAATCTTAAAGCTTATCGATACGGCGTACGGCGCGCTAGCGCGCGGCGGATGGATCCCATCGGTCAATTTTACGCATGATTATCTTTAACGTACG
      3XP3-EYFP MARKER < LEFT TERMINAL REPEAT >
8400 TCACAAATATGATTATCTTTCTAGGGTTAATCTAGCTGCGTGTCTGCAGCGTGTGAGCATCTTTCATCTGCTCCATCAGCTGTAAACACACATTTCACCC
      < LEFT TERMINAL REPEAT >
8500 GCGAGTCTGCCCGTCCCTCCACGGGTTCAAAAACGTGAATGAACGAGGCGCGCGCGGGTAACTACGGGGTATCCATGTCCATTCTCTCGGGCATCCAG
8600 CCAGGATACCCGTCCTCGCTGACGTAATATCCAGCGCGCACCGCTGTCAATTAATCTGCACACCGGCACGGCAGTTCGGGCTGTCCGGCGGTATTGTTCCG
8700 GGTTCGTGATGCGCTTCGGGCTGACCATCCGGAACTGTGTCCGGAAAAAGCCCGACGAACTGGTATCCCAGGTGGCCTGAACGAACAGTTCACCGTTAAA
8800 GGCGTGCAATGGCCACACCTTCCCGAATCATATGGTAAACGTGCGTTTTCGCTCAACGTCAATGCAGCAGCATCTCCTCGGCAAACTCTTCCATGCC
8900 GCTTCAACCTCGCGGGAAGGCACGGGCTTCTTCCCTCCCCGATGCCCAGATAGCCGAGCTTGGCGGATGACTGAGCCGGAAAAAAGACCCGACGATAT
9000 GATCCCTGATGCAGCTAGATTAAACCCTAGAAAGATAGTCTGCGTAAATTAACGCATGGGATCCCCCGGGCTGCAGGAATTCGATATCAAGCTTATCGATA
      < RIGHT TERMINAL REPEAT >
      CCGTCGAAGCTT -- (SEQ ID NO:49) --

```

FIG. 13(B) CONT.

P(PZ)-bac-EGFP

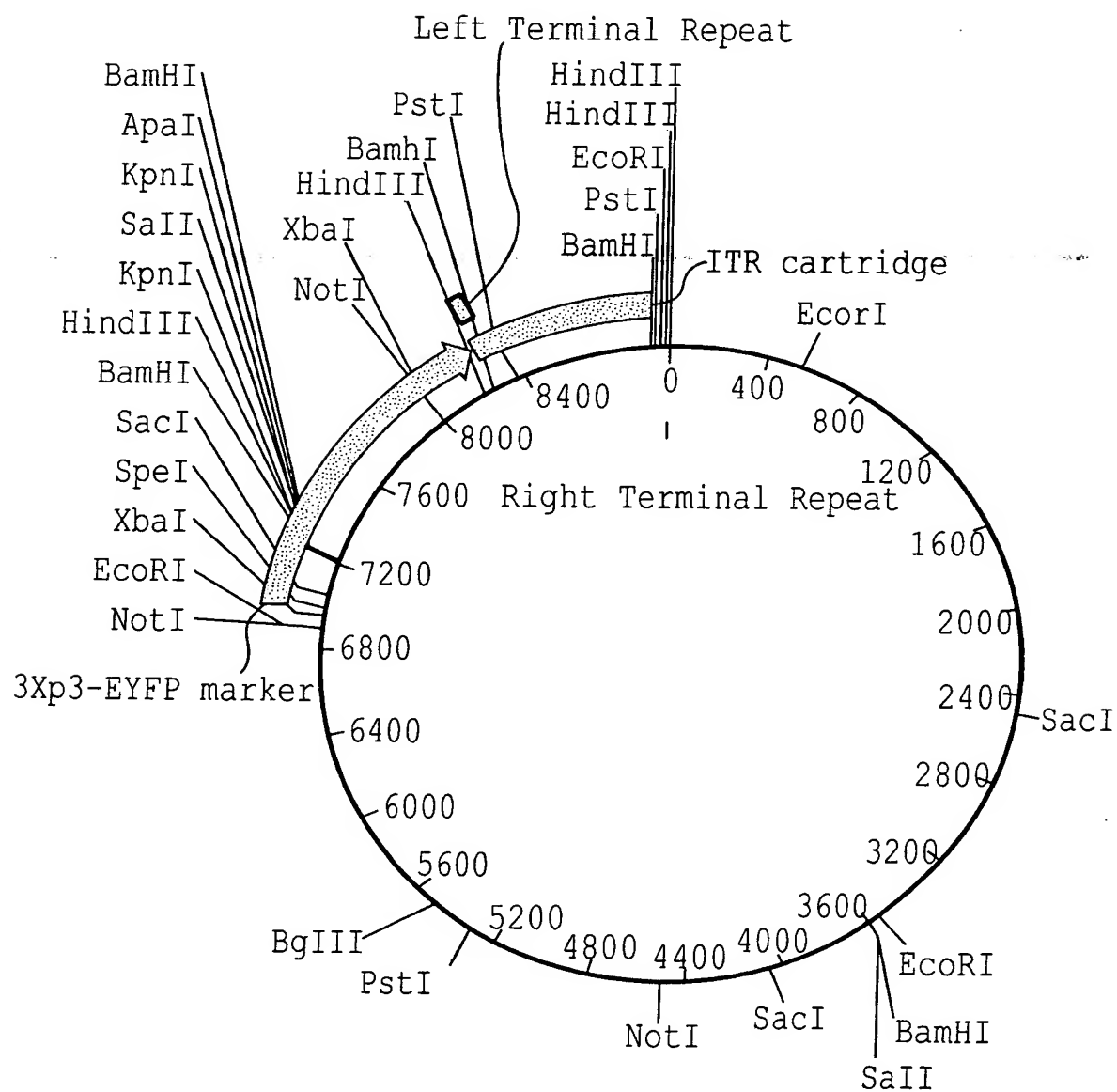


FIG. 14A

P(PZ) -Bac-EGFP

Sequence Range: 1 to 9013

```
100 ACCGAAGTATACACTTAAATTTCAGTGCACGTTTGCTTGAGAGGAAAGGTTGTGTGGGACGAATTTTTTTTGAACATTAAACCTTACGTGGAAT
200 AAAAAAATGAAATATTGCAAAATTTGCTGCAAAAGCTGTGACTGGAGTAAAAATTAATTCACGTGCCGAAGTGTGCTATTAAAGAGAAAAATTGTGGGAGCA
300 GAGCCTGGGTGCAGCCTTGGTGAAAAACTCCCAAATTTGTGATACCCACTTTAATGATTCGCAGTGGAAAGGCTGCACCTGCAAAAGGTCAGACATTAAAT
400 AGGAGGGACTCAACGCAGATGCCGTACCTAGTAAAGTGATAGAGCCTGAACCCAGAAAAAGATAAAGAGGCTATACCAGTGGGAGTACACAAACAGAGT
500 AAGTTTGAATAGTAAAAAAATCATTATGTAAACAATAACGTGACTGTGCGTTAGGTCTGTTCATTGTTTAATGAAAAATAAGAGCTTGAGGGAAAAAA
600 TTCGTACTTTGGAGTACGAAATGCGTCGTTTAGAGCAGCAGCCGGAATTCACCTGGCCGTCGTTTACAACGTCGTGACTGGGAAAAACCCCTGGCGTTACCCA
700 ACTTAATCGCCTTGCAGCACATCCCCCTTTCGCCAGCTGGCGTAATAGCGAAGAGCCCGCACCGATCGCCCTTCCCCAACAGTTGCCGAGCCTGAATGGC
800 GAATGGCGCTTTGCCCTGGTTTCCGGCACCAAGAGCGGTGCCGGAAGCTGGCTGGAGTGGCATCTTCCTGAGGCCGATACTGTCTGTCCTCCCTCAAAC
900 GGCAGATGCACGGTTACGATGCGCCCATCTACACCAACGTAACCTATCCCATACGGTCAATCCGCCGTTTGTTCACCGGAGAAATCCGACGGGTTGTTA
1000 CTCGCTCACATTTAATGTTGATGAAAGCTGGCTACAGGAAGGCCAGACGCGAATTATTTTGTATGGCGTTAACTCGGCGTTTCATCTGTGGTGCAACGGG
1100 CGCTGGGTGCGTTACGGCCAGGACAGTCGTTTGCCGTCGTGAATTTGACCTGAGCGCATTTTACGCGCCGGAGAAAAACCGCCCTCGCGGTGATGGTGCTGC
```

FIG. 14(B)

1200 GTTGGAGTGACGGCAGTTATCTGGAAGATCAGGATATGTGGCGGATGAGCGCATTTTCCGTGACGTCTCGTTGCTGCATAAACCGACTACACAAATCAG
1300 CGATTTCCATGTTGCCACTCGCTTTAATGATGATTTACGCCCGCTGTACTGGAGGCTGAAGTTCAGATGTGCGGCGAGTTGCGTGACTACCTACGGGTA
1400 ACAGTTTCTTTATGGCAGGTGAAACGCAGGTGCGCCAGCGGACCCGCCCTTTCGGCGGTGAAATTATCGATGAGCGTGGTGGTTATGCCGATCGCGGTCA
1500 CACTACGCTGAACGTCGAAAACCCGAAACTGTGGAGCGCCGAAATCCCGAATCTCTATCGTGGGTGGTTGAACCTGCACACCGCCGACGGCACGCTGAT
1600 TGAAGCAGAAGCCTGCGATGTCGGTTTCCGCGAGGTGCGGATTGAAAAATGGTCTGCTGCTGCTGAACGGCAAGCCGTGCTGATTTCGAGGGCGTTAACCGT
1700 CACGAGCATCATCCTCTGCATGGTCAAGTCAAGCAGACCATGGTGCAGGATATCCTGCTGATGAAGCAGAACACTTTAACGCCGTGCGGTGTT
1800 CGCATTATCCGAACCATCCGCTGTGGTACACGCTGTGGCACCGCTACGGCCTGTATGTGGTGATGAAGCCCAATATTGAAACCCACGGCATGGTGCCAAT
1900 GAATCGTCTGACCGATGATCCGCGCTGGCTACCGCGATGAGCGAACGCGTAACGCGAATGGTGCAGCGCGATCGTAATCACCCGAGTGTGATCACTGG
2000 TCGCTGGGGAATGAATCAGGCCACGGCGCTAATCACGACGCGTGTATCGCTGGATCAAAATCTGTGATCCTTCCCGCCCGGTGCAGTATGAAGCGGCG
2100 GAGCCGACACCACGGCCACCGATATTATTGCCCGATGTACGCGCGGTGGATGAAGACCAGCCCTTCCCGGCTGTGCCGAAATGGTCCATCAAAAAATG
2200 GCTTTCGCTACCTGGAGACGCGCCCGCTGATCCTTTGCCAATACGCCCCACCGGATGGGTAAACAGTCTTGGCGGTTTCGCTAAATACTGGCAGGCGTTT
2300 CGTCAGTATCCCCGTTTACAGGGCGGCTTCGTCCTGGGACTGGGTGGATCAGTCGCTGATTAAATATGATGAAAAACGGCAACCCGTGGTCGGCTTACGGCG

FIG. 14(B) CONT.

2400 GTGATTTTGGCGATACGCCGAACGATCGCCAGTTCTGTATGAACGGTCTGGTCTTTGCCGACCGCACGCCGCATCCAGCGCTGACGGAAACAAACACCA
2500 GCAGCAGTTTTCAGTTCCGTTTATCCGGGCAAAACCATCGAAGTGACCAGCGAATACCTGTTCCGTCAATAGCGATAACGAGCTCCTGCACCTGGATGGTG
2600 GCGCTGGATGGTAAGCCGCTGGCAAGCGGTGAAGTGCCTCTGGATGTCGCTCCACAAGTAAACAGTTGATTGAACTGCCCTGAACACTACCGCAGCGGGAGA
2700 GCGCCGGCAACTCTGGCTCACAGTACCGGTAGTGCAACCGAACGGACCGCATGGTCAGAAGCCGGGCACATCAGCGCCTGGCAGCAGTGGCGTCTGGC
2800 GGAAACCTCAGTGTGACGCTCCCCCGCCGCTCCACGCCATCCCGCATCTGACCACCAGCGAAATGGATTTTTCATCGAGCTGGGTAATAAGCGTTGG
2900 CAATTTAACCGCCAGTCAGGCTTCTTTACAGATGTGGATTGGCGATAAAAAACAACCTGCTGACGCCGCTGCGCGATCAGTTTACCCGTGACCGCTGG
3000 ATAACGACATTGGCGTAAGTAAGCACC CGCATTGACCCCTAACGCCCTGGGTGGAACGCTGGAAGCGCGGGGCCATTACCAGGCCGAAGCAGCGTTGTT
3100 GCAGTGCACGGCAGATACACTTGCTGATGCGGTGCTGATTACGACCGCTCAGCGTGGCAGCATCAGGGGAAACCTTATTATCAGCCGGGAAACCTAC
3200 CCGATTGATGGTAGTGGTCAATGGCGATTACCGTTGATGTTGAAGTGGGAGCGATACCCGCATCCGGCGCGGATTGGCCTGAACCTGCCAGCTGGCCG
3300 AGGTAGCAGAGCGGGTAAACTGGCTCGGATTAGGGCCGCAAGAAACTATCCCAGCCGCTTACTGCCCGCCTGTTTTCACCGCTGGGATCTGCCATTGTC
3400 AGACATGTATACCCCGTACGTCTTCCCGAGCGGAAAACGGTCTGCGCTGCGGGACGGCGGAATTGAATTATGGCCCAACACAGTGGCGCGGACTTCCAG
3500 TTCAACATCAGCCGCTACAGTCAACAGCAACTGATGGAAACCAACCGCATCGCCATCTGCTGCACGCGGAAGAGGCACATGGCTGAATATCGACGGTTTCC

FIG. 14(B) CONT.

3600 ATATGGGGATTGGTGGCGACGACTCCTGGAGCCCGTCAGTATCGGCGGAATTCAGCTGAGCGCCGGTCGCTACCATACCAGTTGGTCTGGTGTCTGGGGG
3700 ATCCGTCGACTAAGGCCAAAGAGTCTAAATTTTGTTCATCAATGGGTTATAACATATGGGTTATATTATAAGTTTGTTTTAAGTTTGTGAGACTGATAAG
3800 AATGTTTCGATCGAAATATCCATAGAACAACAATAGTATTACCTAATTACCAAGTCTTAATTTAGCAAAAAATGTTATTGCTTATAGAAAAATAAATTAT
3900 TTATTTGAAATTTAAAGTCAACTTGTCATTTAATGTCCTTGTAGACTTTTGAAAGTCTTACGATACAATTAGTATCTAATATACATGGGTTCAATCTACAT
4000 TCTATATTAGTGATGATTTCTTTAGCTAGTAATACATTTTAATATATTCGGCTTTGATGATTTTCTGATTTTTCGGAACGGATTTTTCGTAGACCCCTTT
4100 CGATCTCATAAATGGCTCATTTTATTGGCATGGACGGTCAGGAGAGCTCCACTTTTGAATTTCTGTTCCGAGACACCGCATTTTGTAGCACATAGCCCGGGAC
4200 ATCCGGTTGGGGAGATTTTCCAGTCTGTGTTGCAATTGGTTTTTCGGGAATGCGTTGCAGGGCGCATACGCTCTATACTCCGAACGGCGCTGGTTGACC
4300 CTAGCATTTACATAAGGATCAGCAGCAAAATTTGCCTCTGCTTCATTGCCCCGGAATCACAGCAATCAGATGTCCCTTTCGGTTACGATGGATATTCAGGT
4400 GCGAACCGCACACAAGCTCTCGCCGCACACTCCACACTGATATGGTCGCTCGCCCTGTGGCGCCGCATATGGATCTTAAGGTCGTTGGACTGCACAAAG
4500 CTCTTGCTGCACATTTTGCAGGAGTACGGCCTTTGACCCGTGTGCAATCGCATGTGTCCGCCCAGCTTGTTCTGCGAAATAAACTTCTTGGAGCAGATGC
4600 GCGCGCCCGGGTGGGGGAAGAACTCCAGCATGAGATCCCCCGCTGGAGGATCATCCAGCCGGCTCCCGAAACGATTCCGAAGCCCCAACCTTTCAT
4700 AGAAGCGGCGGTGGAATCGAAATCTCGTGATGGCAGGTTGGCGCTCGCTTGGTCCGTCAATTTCGAACCCAGAGTCCCGCTCAGAAGAACTCGTCAAGA
4800 AGCGATAGAAGCGGATGCGCTGCGAATCGGGAGCGGGGATACCGTAAAGCACGAGGAAGGGTCAGCCCCATTGCGCCGCCAAGCTCTTCAGCAATATCAC

FIG. 14(B) CONT.

4900 GGGTAGCCAAACGCTATGTCCCTGATAGCGGTCCGCCACACCCAGCCGGCCACAGTCGATGAATCCAGAAAAGCGGCCATTTCACCATGATATTTCGGCAA
5000 GCAGGCATCGCCATGGGTACGACGAGAGATCCCTCGCCGTTCGGGCAATCGCGCCCTTGAGCCCTGGCGAACAGTTTCGGCTGGCGGAGCCCCTGATGCTCTTCG
5100 TCCAGATCATCTTGATCGACAAGACCGGCTTCATCCGAGTACGTGCTCGCTCGATGCGATGTTTCGCTTGGTGGTCGAATGGGCAGGTAGCCGGATCAA
5200 GCGTATGCAGCGCCGCATTCGATCAGCCATGATGGATACTTCTCGGCAGGAGCAAGGTGAGATGACAGGAGATCCTGCCCCCGGCACTTCGCCCAATAG
5300 CAGCCAGTCCCCTTCCCGCTTCAGTGACAACGTCGAGCACAGCTGGCGCAAGGAACGCCCGTCGTGCCCAGCCACGATAGCCCGCGCTGCCCTCGTCCCTGCAGT
5400 TCATTCAGGGCACCGGACAGGTCGGTCTTGACAAAAGAACCGGGCGCCCTCGCGTGACAGCCGGAACACGGCGGCATCAGAGCAGCCGATTGTCTGTT
5500 GTGCCCAGTCATAGCCGAATAGCCTCTCCACCCAAAGCGCCGGAGAACCTGCGTGCAATCCATCTTGTTCATCATCGGAAACGATCCTCATCCTGTCTC
5600 TTGATCAGATCTTGATCCCCCTGGCCCATCAGATCCCTTGGCGGCAAGAAAGCCATCCAGTTTACTTTGCAGGGCTTCCCAACCTTACCAGAGGGCGCCCCA
5700 GCTGGCAATTCCGGTTCCGCTTGCTGTCCATAAAACCGCCAGTCTAGCTATCGCCATGTAAAGCCCACTGCAAGCTACCTGCTTCTCTTTGGGCTTGCGT
5800 TTTCCCTTGTCAGATAGCCCAGTAGCTGACATTATCCGGGTCAGCACCGTTTCTGCGGACTGGCTTCTACGTGTTCGCGCTTCCTTTAGCAGCCCCTT
5900 GCGCCCTGAGTGTTCGGCAGCGTGAAGCTAATTTCATGGTTATAAATTTTGTAAATCAGCTCATTTTTTAACCAATAGGCCGAAATCGGGCAAAATCC
6000 CTTATAAATCAAAGAATAGCCCAGATAGGGTTGAGTGTGTTCCAGTTTGGAACAAGAGTCCACTATTAAAGAACGTGGACTCCAACGTCAAAGGGCG
6100 AAAAACCGTCTATCAGGGCGATGGCCGGATCAGCTTATGCGGTGTGAAATACCCGACAGATGCGTAAGGAGAAATACCGCATCAGGGCTCTTCCGCTT

FIG. 14(B) CONT.

```

6200 CCTCGCTCACTCGCTCGGCTCGGTCGTTCCGGCTGCGGCGAGCGGTATCAGCTCACTCAAAGGCGGTAAACGGTTATCCACAGAAATCAGGGGATAA
6300 CGCAGGAAGAACAATGTAGCAAAAGGCCAGCAAAAGGCCAGGAACCGTAATAAAGGCCGCGTGTCTGGCGTTTTCATAGGCTCCGCCCCCTGACGAG
6400 CATCACAAAAATCGACGCTCAAGTCAGAGGTGGCGGAAACCCGACAGGACTATAAAGATACCAGGCGTTTCCCCCTGGAAGCTCCCTCGTGGCTCTCCTG
6500 TTCCGACCCCTGCCGCTTACCGGATACCTGTCCGCCCTTTCTCCCTTCGGGAAGCGTGGCGCTTCTCATAGCTCAGCTGTAGGTATCTCAGTTCGGTGTA
6600 GGTGCTCGCTCCAAGCTGGGCTGTGTGACGAACCCCCCGTTACGCCCGACCGCTGCGCCTTATCCGGTAACTATCGTCTTGAGTCCAAACCCGGTAAGA
6700 CACGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGCGGTGCTACAGAGTTCTTGAAGTGGTGGCCTAACTACG
6800 GCTACACTAGAAGGACAGTATTGGTATCTGGGCTCTGCTGAAGCCAGTTACCTTCGGAAAAAGAGTTGGTAGCTCTTGATCCGGCAAAACAACCCCGC
6900 TGGTAGCGCGGTTTTTTGTGCAAGCAGCAGATTACGCCGAGAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTTCTTACTGAACGGTGATCCCCA
7000 CCGGAATTGCGGCCCGGGAATTCTCATGTTTGACAGCTTATCATCGATAAGCTGGCCGCTCTAGAACTAGTGTCCCACAAATGGTTAATTCGAGCTCGCC
>
7100 CGGGGATCTAATTCAATTAGAGACTAATTCAATTAGAGCTAATTCAATTAGGATCCCAAGCTTATCGATTTCGAACCCCTCGACCCCGGAGTATAAATAGA
>
7200 GCGGCTTCGTCTACGGAGCGACAATTCAATTCAAACAAGCAAAAGTGAACACGTCGCTAAGCGAAAGCTAAGCAAATAACAAGCGCAGCTGAACAAGCTA
>

```

FIG. 14(B) CONT.

7300 ACAAATCGGGGTACCGCTAGAGTCGACGGTACCGCGGGCCCGGGATCCACCGGTCCGCCACCATGGTGAGCAAGGCGGAGGAGCTGTTCAACCGGGGTGGTG
3XP3-EYFP MARKER >
7400 CCCATCCTGTGTCGAGCTGGACGGCGACGTAAACGGCCACAAAGTTCAGCGTGTCCGGCGAGGCGGATGCCACCTACGGCAAGCTGACCCCTGAAGT
3XP3-EYFP MARKER >
7500 TCATCTGCACACCGGCAAGCTGCCCCGTGCCCTGGCCACCCCTCGTGACCACCCCTGACCCTACGGCGTGCAGTGCTTCAGCCGCTACCCCGACCACATGAA
3XP3-EYFP MARKER >
7600 GCAGCAGGACTTCTTCAAGTCCGCCATGCCCGAAGGCTACGTCCAGGAGCGCACCATCTTCTTCAAGGACGACGGCAACTACAAGACCCCGCGCGAGGTG
3XP3-EYFP MARKER >
7700 AAGTTCGAGGGCGACACCCTGGTGAACCGCATCGAGCTGAAGGGCATCGACTTCAAGGAGGACGGCAACATCCTGGGGCACAAAGCTGGAGTACAACACTACA
3XP3-EYFP MARKER >
7800 ACAGCCACAACGCTCTATATCATGGCCGCAAGCAGAGAAGACGGCATCAAGGTGAACCTTCAAGATCCGCCACACAATCGAGGACGGCAGCGTGCAGCTCGC
3XP3-EYFP MARKER >
7900 CGACCACTACCAGCAGAACACCCCATCGGCGACGGCCCCGTGCTGTGCTGCCCCGACAAACCACTACCTGAGCACCCAGTCCGCCCTGAGCAAAAGACCCCAAC
3XP3-EYFP MARKER >
8000 GAGAGCGCGATCACATGGTCTGCTGGAGTTCGTGACCGCGCCCGGGGATCACTCTCGGCATGGACGAGCTGTACAAGTAAAGCGGGCGCGACTCTAGAT
3XP3-EYFP MARKER >
8100 CATAATCAGCCATACCACATTGTAGAGGTTTACTTGCTTTAAAAAACCTCCACACCTCCCCCTGAACCTGAAACATAAAATGAATGCAATTGTTGTT
3XP3-EYFP MARKER >

FIG. 14(B) CONT.

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8200 GTTAACTGTGTTTATGCAGCTTATAATGGTTACAAATAAAGCAATAGCATCACAAATTTACAAATAAAGCAATTTTTTCACTGCATTCTAGTTGTGGTT
      3XP3-EYFP MARKER >
8300 TGTCCAAACTCATCAATGTATCTTAAAGCTTATCGATACGGGTACGGCGCGCCTAGTGGATCCCATGCGTCAATTTACGCATGATTATCTTTAACGTAC
      3XP3-EYFP MARKER < LEFT TERMINAL REPEAT
8400 GTCACAAATATGATTATCTTTCTAGGGTTAATCTAGCTGCGTGTCTGACGCGTGTCTGAGCATCTTCATCTGCTCCATCAGCTGTAAACACACATTTGCAC
      3XP3-EYFP MARKER < LEFT TERMINAL REPEAT
8500 CGCGAGTCTGCCCCGTCCCTCCACGGGTTCAAAAACGTGAATGAACGAGGGCGGCCCGGGTAACTCAGGGGTATCCATGTCCATTTCTGCGGCATCCA
8600 GCCAGGATACCCGTCCTCGCTGACGTAATATCCCAGCGCGCACCGCTGTCAATCTGCACACCGGCACGGCAGTTCGCGGTGTCCGCGGTATTGTTTC
8700 GGGTTGCTGATGCGGCTTCGGGCTGACCATCCGGAACTGTGTCCGGAAGCCGCGACGAAGTGGTATCCCAGGTGGCCTGAACGAACAGTTCACCGTTAA
8800 AGCGTGATGGCCACACCTTCCCAGAAATCATGTTAAACGTGCGTTTTCGCTCAACGTCAATGCAGCAGCATCTCCTCGGCAAACTCTTCCATGC
8900 CGCTTCAACCTCGCGGGAAGGCACGGGCTTCTTCTCCCGATGCCCAGATAGCGCCAGCTTGGGCGATGACTGAGCCGGAAAAAGACCCCGACGATA
9000 TGATCCTGATGCAGCTAGATTAAACCTAGAAAGATAGTCTGCGTAAAAATTGACGCATGGGATCCCCCGGGCTGCAGGAATTCGATATCAAGCTTATCGAT
      < RIGHT TERMINAL REPEAT
ACCGTCGAAGCTT -- (SEQ ID NO:50) --

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FIG. 14(B) CONT.

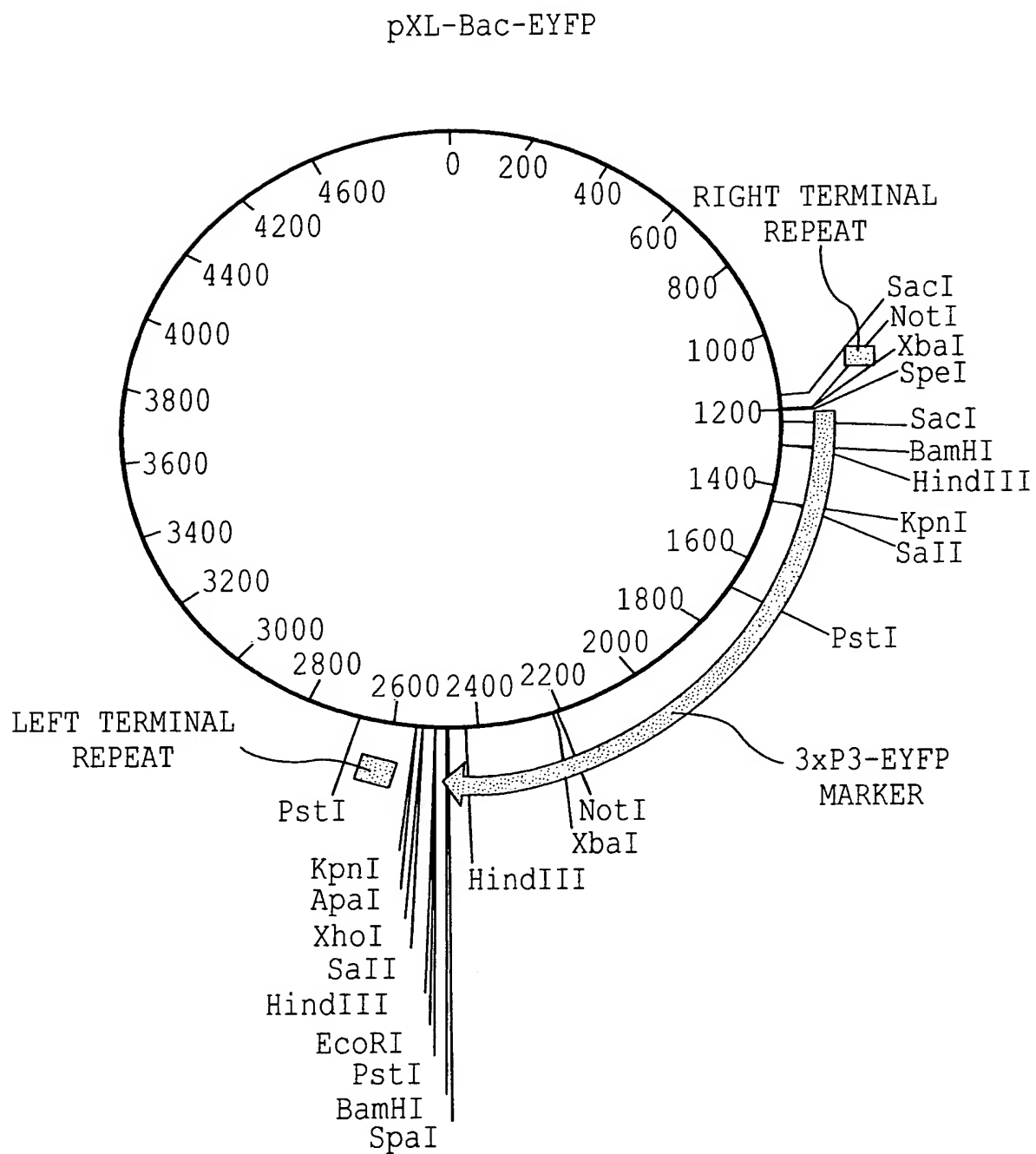


FIG. 15A

pXL-Bac-EYFP
Sequence Range: 1 to 4951

100
CTAAATTGTAAGCGTTAATAATTTTGTAAAAATTCGCGTTAAATTTTGTAAATCAGCTCATTTTTTAACCAATAGGCCGAAATCGGCAAAATCCCCTTAT
200
AAATCAAAAGAAATAGACCGAGATAGGGTTGAGTGTGTTCCAGTTTGGAAACAAGAGTCCACTATTAAAGAACGTGGACTCCAACGTCAAAGGGCGGAAAAA
300
CCGTCTATCAGGGCGATGGCCCACTACGTGAACCATCACCCATAATCAAGTTTTTGGGGTCGAGGTGCCGTAAAGCACTAAATCGGAACCCCTAAAGGGAG
400
CCCCGATTTAGAGCTTGACGGGGAAGCCGGCAACGTGGCGAGAAAGGAAGGAAAGCAAGGAGCGGGCGCTAGGGCGCTGGCAAGTGTAGCG
500
GTCACGCTGCGGTAACCAACACACCCCGCGCGCTTAATGCGCGCGTACAGGGCGGTCCCATTCGCCATTACAGGCTGCGCAACTGTTGGAAAGGGCGGAT
600
CGGTGGGGCCTCTTCGCTATTACGCCAGCTGGCGAAAGGGGATGTGCTGCAAGCGGATTAAAGTTGGTTAACGCCAGGGTTTTCGCCAGTCACGACGTTG
700
TAAACGACGGCCAGTGAGCGCGCGCGCGGGTAACCTACGGGGTATCCATGTCCATTTCGTGGGCAATCCAGCCAGGATACCCGTCCCTCGCTGACGTAAT
800
ATCCCAGCGCGCACCGCTGTCAATTAATCTGCACACCGGCAAGCGAGTTCGGCTGTCCCGGTAATTGTTCCGGTTGCTGATGCGCTTCGGGCTGACCAT
900
CCGGAACGTGTCCGGAAAAGCCCGACGAACCTGGTATCCAGGTGGCCTGAACGAACAGTTCACCGTTAAAGCGTGATGGCCACACCTTCCCCGAATC
1000
ATCATGGTAAACGTGCGTTTTCGCTCAACGTCAATGCAGCAGCAGTCATCCTCGGCAAACTCTTTCCATGCCGTTCAACCTCGCGGGAAGGCACGGG
1100
CTTCTTCTCTCCCGATGCCCCAGATAGCGCCAGCTTGGCGGATGACTGAGCCGGAAAAAGACCCGACGATATGATCCTGATGCAGCTAGATTAAACCTAG
1200
AAAGATAGTCTGCGTAAAAATTGACGCGATGATCTAATTAAACCTCACTAAAGGGAACAAAAGCTGGAGCTCCACCGGTGGCGGCGCTCTAGAACTAGT
< RIGHT TERMINAL REPEAT

FIG. 15(B)

1300 GTTCCCAATGGTTAATTCGAGCTGCCCCGGGATCTAATTCAATTAGAGCTAATTCAATTAGGATCCAAGCTTATCGATTTC
 3XP3-EYFP MARKER >
 1400 GAACCCCTCGACCGCGGAGTATAAATAGAGGCGCTTCGTCTACGGAGCGACAATTCAATTCAAACAAGCAAAGTGAACACACGTCGCTAAGCGAAAGCTAAG
 3XP3-EYFP MARKER >
 1500 CAAATAACAAGCGCAGCTGAACAAGCTAAACAATCGGGGTACCGCTAGAGTCGACGGTACGATCCACCGGTCCGCCACCATGTTGAGCAAGGCGGAGGAG
 3XP3-EYFP MARKER >
 1600 CTGTTACCGGGGTGGTGCCCATCCTGGTCGAGCTGGACGGCGACGTAAACGGCCACAAGTTCAGCGTGTCCGGGCGAGGGCGGATGCCACCTACG
 3XP3-EYFP MARKER >
 1700 GCAAGCTGACCCCTGAAGTTCATCTGCACCACCGGCAAGCTGCCCGTGCCCTGGCCCCACCCCTCGTGCACCCCTTCGGCTACGGCCTGCAGTGCTTCGCCCGG
 3XP3-EYFP MARKER >
 1800 CTACCCCGACCACATGAAGCAGCAGACTTCTTCAAGTCCGCCATGCCCCGAAGGTACGTCCAGGAGCGCACCATCTTCTTCAAGGACGACGGCAACTAC
 3XP3-EYFP MARKER >
 1900 AAGACCGCGCGAGGTGAAGTTCGAGGGCGACACCCCTGGTGAACCGCATCGAGCTGAAGGGCATCGACTTCAAGGAGGACGGCAACATCCTGGGGCACA
 3XP3-EYFP MARKER >
 2000 AGCTGGAGTACAACACAGCCACAACGTCATATCATGCGCCGACAAGCAGAAGAACGGCATCAAGGTGAACCTCAAGATCCGCCACACATCGAGGA
 3XP3-EYFP MARKER >

FIG. 15(B) CONT.

```

2100 CCGCAGCGTGCAGCTCGCCGACCACTACCAAGACAACACCCCATCGGCGACGGCCCGTGTGCTGCCCCGACAACCACTACCTGAGCTACCACTCCGCC
    3XP3-EYFP MARKER >
2200 CTGAGCAAAGACCCCAACGAGAAGCGGATCACATGGTCCTGCTGGAGTTCGTGACCGCCCGGGATCACTCTCGGCATGGACGAGCTGTACAAGTAAA
    3XP3-EYFP MARKER >
2300 GCGCCCGGACTCTAGATCATATCAGCCATACCACATTGTAGAGGTTTTACTTGCTTTAAAAAACCTCCACACACCTCCCCCTGAACCTGAAACATATAAA
    3XP3-EYFP MARKER >
2400 ATGAATGCAATTGTTGTTAACTTGTATTGTCAGCTTATAATGGTTACAAAATAAAGCAATAGCATCACAAATTCACAAATAAAGCATTTTTTTCAC
    3XP3-EYFP MARKER >
2500 TGCATTCTAGTTGTGTTGTCCAACTCATCAATGTATCTTAAAGCTTATCGATACGGTACGGCGCGCCTAGGCACCTAGTGGATCCCCCGGGCTGCAG
    3XP3-EYFP MARKER >
2600 GAATTCGATATCAAGCTTATCGATACCGTCGACCTCGAGGGGGGGGGTACCCCAATTTCGCCCTATAGTGAGTCGTATTAAAGATCAGCGTAGATCCAT
    <
2700 GCGTCAATTTTACGCATGATTATCTTAAACGTACGTCACAATATGATTATCTTTCTAGGGTTAATCTAGCTGCGTGTCTGCAGCGTGTCTCGAGCATCTTC
    LEFT TERMINAL REPEAT <
2800 ATCTGCTCCATCAGCGTGTAACACATTTGCACCGCGAGTCTGCCCGTCTCCACGGGTTCAAAAAACGTGAATGAACGAGGGCGGCTTGGCGTAATCAT
2900 GGTATAGCTGTTTCTGTGAAATTGTTATCCGCTCACAAATTCACACAACATACGAGCCGGAAGCATAAAGTGTAAGCCTGGGGTGCCTAATGAGT

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FIG. 15(B) CONT.

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3000 GAGCTAACTCACATTAAATTGCGTTGCGCTCACTGCCCGCTTTCCAGTCGGGAAACCTGTCGTGCCAGCTGCATTAAATGAATCGGCCCAACGCCGGGGGAGA
      >Cole1_origin
      |
      |
3100 GCGGTTTGGCGTATTGGGCGCTCTTCCGCTTCCCTCGCTCACTGACTCGCTGCGCTCGGTCTGTCGGCTGCGGAGCGGTATCAGCTCACTCAAAGGCGG
3200 TAATACGGTTATCCACAGAAATCAGGGGATAACGCAGGAAAGAACATGTGAGCAAAGGCCAGCAAAAGCCAGGAACCGTAAAAAGGCCGCGTTGCTGGC
3300 GTTTTCCATAGGCTCCGCCCCCTGACGAGCATCACAAAATCGACGCTCAAGTCAGAGTGGCGAAACCCGACAGGACTATAAAGATACCAGCGCTT
3400 CCCCCTGGAAGCTCCCTCGTGCGCTCTCCTGTTCGACCCCTGCCGCTTACCGGATACCTGTCCGCCCTTCTCCCTTCGGGAAGCGTGGCGCTTTCTCATA
3500 GCTCACGCTGTAGGTATCTCAGTTCGGGTGTAGGTCGTTCCGCTCCAGCTGGGCTGTGTGCACGAACCCCCGTTCAGCCCCGACCGCTGCGCCTTATCCGG
3600 TAACTATCGTCTTGAGTCCAACCCGGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGCGGTGCT
3700 ACAGAGTTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGGACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGGAAAAAGAGTTG
3800 GTAGCTCTTGATCCGGCAACAACACCAGCTGGTAGCGGTGGTTTTTTTGTGCAAGCAGCAGATTACCGCGAGAAAAAAGGATCTCAAGAAGATCC
3900 TTTGATCTTTCTACGGGGTCTGACGCTCAGTGGAAACGAAACTCACGTTAAGGATTTTGGTCATGAGATTATCAAAAAGGATCTTCACCTAGATCCTT
4000 TTAAATTAAAAATGAAGTTTTAAATCAATCTAAAGTATATATGAGTAAACTTGGTCTGACAGTTACCAATGCTTAATCAGTGAGGCACCTATCTCAGCGA
      _____>
      AMPICILLIN RESISTANCE

```

FIG. 15(B) CONT.

4100 TCTGTCTATTTTCGTTCATCCATAGTTGCCCTGACTCCCCGTCGTGTAGATAAACTACGATACGGGAGGGCTTACCATCTGTGGCCCCAGTGTCTGCAATGATACC
 AMPICILLIN RESISTANCE >
 4200 GCGAGACCCACGCTCACCGGCTCCAGATTTATCAGCAATAAACACAGCCAGCCGGAAGGCCGAGCGCAGAAGTGGTCCCTGCAACTTTATCCGGCCTCCCATC
 AMPICILLIN RESISTANCE >
 4300 CAGTCTATTAATTGTTGCCGGGAAGCTAGAGTAAGTAGTTCGCCAGTTAATAAGTTTGGCAACGTTGTTGCCATTGCTACAGGCATCGTGGTGTACAGGCT
 AMPICILLIN RESISTANCE >
 4400 CGTCGTTTGGTATGGCTTCATTCAGCTCCCGGTTCCCAACGATCAAGCGGAGTTACATGATCCCCCATGTTGTGCAAAAAGCGGTTAGCTCCTTCGGTCC
 AMPICILLIN RESISTANCE >
 4500 TCCGATCGTTGTCAGAAAGTAAGTTGGCCGCGAGTTATCACTCATGTTATGGCAGCACTGCATAATTCTCTTACTGTCTATGCCATCCCGTAAGATGCTTT
 AMPICILLIN RESISTANCE >
 4600 TCTGTGACTGGTGAGTACTCAACCAAGTCATTCTGAGAAATAGTGTATGCGGCGACCGAGTTGCTCTTGTCCCGCGGTCAATACGGGATAATACCGCGCCAC
 AMPICILLIN RESISTANCE >
 4700 ATAGCAGAACTTTAAAAGTGCTCATCATTTGGAAAACGTTCTTCGGGGCGAAAACCTCTCAAGGATCTTACCGCTGTTGAGATCCAGTTCGATGTAACCCAC
 AMPICILLIN RESISTANCE >
 4800 TCGTGCACCCAACTGATCTTCAGCATCTTTTACTTTTACCAGCGTTTCTGGGTGAGCAAAAACAGGAAGGCAAAATGCCGCAAAAAGGGAATAAGGGCG
 AMPICILLIN RESISTANCE >
 4900 ACACGGAAATGTTGAATACTACTACTCTTCCTTTTCAATATTATTGAAGCATTTATCAGGGTTATTGTCTCATGAGCGGATACATATTTGAATGTATTT
 AMPICILLIN RESISTANCE >
 AGAAAAATAAACAAATAGGGGTTCCGCGCACATTTCCCCGAAAAAGTGCCAC -- (SEQ ID NO:51) --

FIG. 15(B) CONT.

pXL-Bac-EGFP

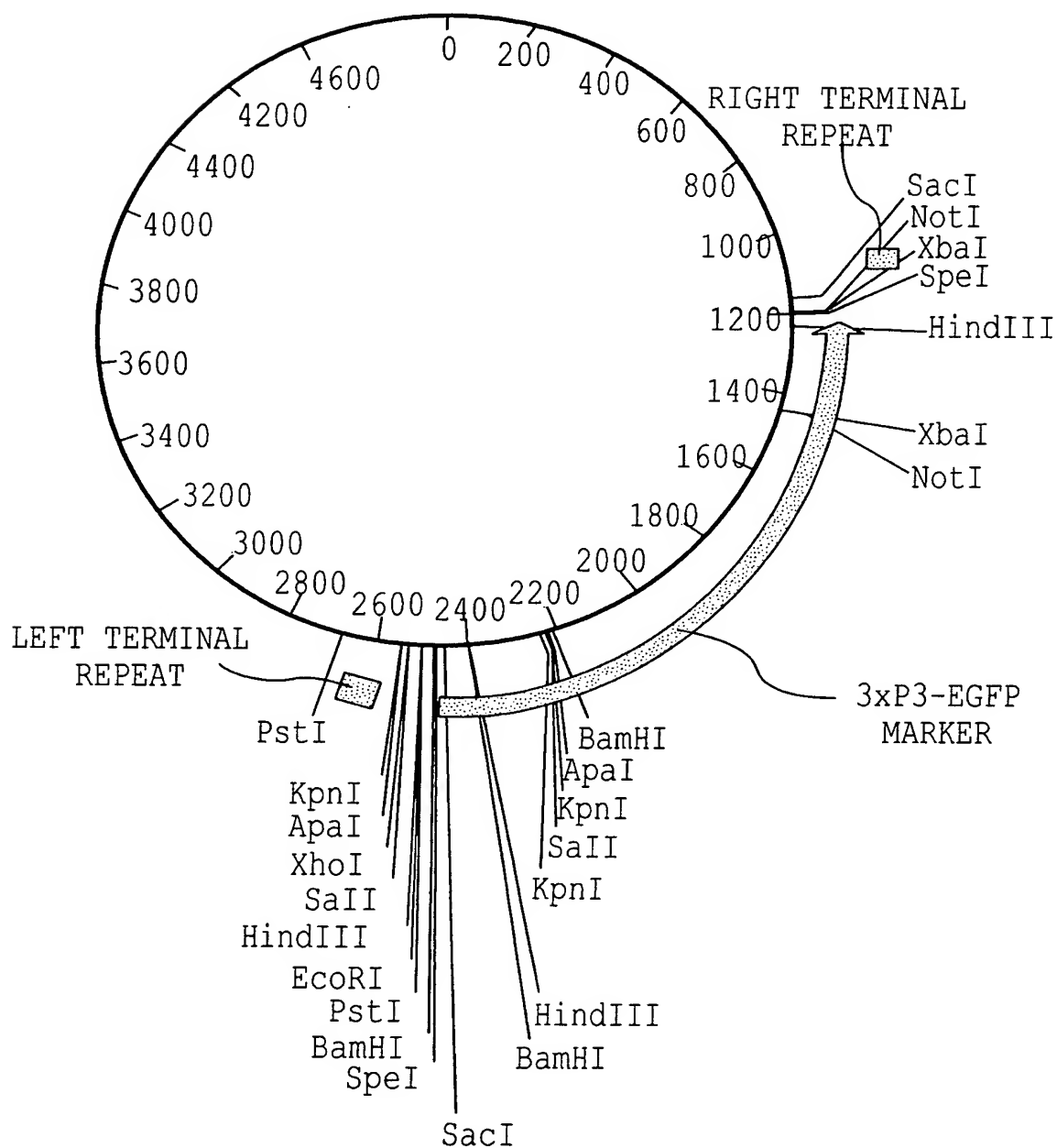


FIG. 16A

pXL-Bac-EGFP
Sequence Range: 1 to 4952

100 CTAAATTGTAAGCGTTAATAATTTTGTAAATTCGCGTTAAATTTTGTAAATCAGCTCATTTTAAACCAATAGGCCGAAATCGGCAAAATCCCTTAT
200 AAATCAAAGAATAGACCGAGATAGGGTTGAGTGTGTTCAGTTTGGACAAGAGTCCACTATTAAAGAAGTGGACTCCAACGTCAAAGGGCGGAAAAA
300 CCGTCTATCAGGGCGATGGCCCACTACGTGAACCATCACCCCTAATCAAGTTTTTTGGGGTCGAGGTGCCGTAAAGCACTAAATCGGAACCCCTAAAGGGAG
400 CCCCCGATTTAGAGCTTGACGGGGAAGCCGGCGGAACGTGGCGAGAAAGGAAGGAAAGCGGCGCTAGGGCGCTGGCAAGTGTAGCG
500 GTCACGCTGGCGGTAAACCAACACACCCGCCGCGCTTAATGGCCCGCTACAGGGCGCGTCCCATTTCGCCATTTCAGGCTGCGCAACTGTTGGGAAGGGCGAT
600 CGGTGCGGGCCTCTTCGCTATTACGCCAGCTGGCGAAAGGGGGATGTGCTGCAAGCGGATTAAAGTTGGTAACGCCAGGGTTTTTCCCAGTCACGACGTTG
700 TAAACGACGGCCAGTGACGCGCCCGCGGGTAACCTACCGGGGTATCCATGTCCATTCTCGGGCATCCAGCCAGGATACCCGTCCTCGCTGACGTAAT
800 ATCCAGCGCCGACCGCTGTCATTAATCTGCACACCGGCACGGCAGTTCGGGTGTCCGGGTATTGTTCCGGTTGCTGATGCGCTTCGGGCTGACCAT
900 CCGGAACGTGTCTCCGGAAAGCCCGGACGAACTGGTATCCCAGGTGGCCTGAACGAACAGTTACCCGTTAAAGGCGTGCAATGCCACACCTTCCCCGAATC
1000 ATCATGGTAACGTGCGTTTTTCGCTCAACGTCAATGCAGCAGCAGTCATCCTCGGCAAACTCTTTCCATGCCGCTTCAACCTCGCGGGAAGGCACGGG
1100 CTTCTTCCCTCCCGATAGCCAGATAGCCAGCTTGGCGGATGACTGAGCCCGGAAAAAGACCCGACGATATGATCCTGATGCAGCTAGATTAAACCCCTAG

FIG. 16(B)

1200
AAAGATAGTCTGCCGTAAAAATTGACGCATGATCTAATTAAACCTCACTAAAGGGAACAAAAGCTGGAGCTCCACCGCGGTGGCGCGCTCTAGAACTAGT
< RIGHT TERMINAL REPEAT
1300
GCCGTACCGGTATCGATAAGCTTTAAGATAACATGATGAGTTTGGACAAAACCACTAGAAATGCAGTGAAAAAATGCTTTATTGTGAAATTTGTGAT
< 3XP3-EGFP MARKER
1400
GCTATTGCTTTATTGTAAACCATTATAAGCTGCAATAAACAAGTTAAACAACAACAATTGCATTCATTTTATGTTTCAGGTTCAGGGGGAGGTGTGGGAGG
< 3XP3-EGFP MARKER
1500
TTTTTTAAAGCAAGTAAACCTCTACAAATGTGGTATGGCTGATTATGATCTAGAGTCGGCGCGCTTACTTGTACAGCTCGTCCATGCCGAGAGTGAT
< 3XP3-EGFP MARKER
1600
CCCGGGCGGTCACGAACCTCCAGCAGGACCATGTGATCGCGCTTCTCGTTGGGTCTTTGCTCAGGGCGGACTGGGTGCTCAGGTAGTGGTTGTCGGGC
< 3XP3-EGFP MARKER
1700
AGCAGCAGCGGGCCGTCGCCGATGGGGGTGTTCTGCTGGTAGTGGTCGGCGAGCTGCACGGCTGCCGTCTCGATGTTGTGGCGGATCTTGAAGTTCACCT
< 3XP3-EGFP MARKER
1800
TGATGCCGTTCTCTGCTTGTCCGGCCATGATATAGACGTTGTGGCTGTTGTAGTTGTACTCCAGCTTGTGCCCCAGGATGTTGCCCGTCCCTCTGAAGTC
< 3XP3-EGFP MARKER
1900
GATGCCCTTCAGCTCGATGCGGTTCAACAGGTTGTCGCCCTCGAACTTCACCTCGGCGGGGTCTTGTAGTTGCCGTCTGTCCTTGAAGAAGATGGTGCGC
< 3XP3-EGFP MARKER
2000
TCCTGGACGTAGCCTTCGGGCATGGCGGACTTGAAGAAGTCGTGCTGCTTCATGTGGTCGGGTAGCGGCTGAAGCACTGCACGCCGTAGGTCAGGGTGG
< 3XP3-EGFP MARKER
2100
TCACGAGGTGGGCCAGGGCAGGGCAGCTTGCCGGTGGTGCAGATGAACCTCAGGGTCAGCTTGCCGTAGGTGGCATCGCCCTCGCCCTCGCCGACAC
< 3XP3-EGFP MARKER

FIG. 16(B) CONT.

2200 GCTGAAC TTGTGGCCGTTTACGTCGCCGCTCCAGCTCGACCAAGGATGGGCACCACCCCGGTGAACAGCTCCTCGCCCTTGCTCACCATTGGTGGCGACCGGT
< 3XP3-EGFP MARKER
2300 GGATCCCGGGCCCGGTACCGTCGACTCTAGCGGTACCCCGATTGTTTAGCTTGTTTCAGCTGCGCTTGTTTATTTGCTTAGCTTTCGCTTAGCGACGTG
< 3XP3-EGFP MARKER
2400 TTCAC TTGCTTGTTGAATTGAATTGTCGCTCCGCTAGACGAAGCGCCTCTATTATAC TCCGGCGGTGAGGGTTCGAAATCGATAAGCTTGGATCCTA
< 3XP3-EGFP MARKER
2500 ATTGAATTAGCTCTAATTGAATTAGTCTCTAAATTGAATTAGATCCCGGGCGAGCTCGAATTAAACCATTTGTGGGAACACTAGTGGATCCCCCGGGCTGCA
< 3XP3-EGFP MARKER
2600 GGAATTCGATATCAAGCTTATCGATACCGTCGACCTCGAGGGGGCGGTACCCAATTGCCCCCTATAGTGAGTCGTATTAAAGATCACGCGTAGATCCA
2700 TCGGCTCAATTTTACCGCATGATTATCTTTAACGTCAGTCACAATATGATTATCTTTCTAGGGTTAATCTAGCTGCGTGTCTGACGCGTGTGAGCATCTT
< LEFT TERMINAL REPEAT
2800 CATCTGCTCCATCACGCTGTAAACACACATTTGCACCGCGAGTCTGCCCGTCTCCTCCACGGGTTCAAAAACGTGAATGAACGAGGCGCGCTTGGCGTAATCA
2900 TGGTCATAGCTGTTTCCTGTGTGAAATTGTTATCCGCTCACAAATCCACACACATACGAGCCGGAAGCATAAAGTGTAAAGCCTGGGGTGCCCTAATGAG
3000 TGAGCTAACTCACATTAATTGCGTTGCGGCTCACTGCCCGCTTCCAGTCGGGAACCTGTCTGTGCCAGCTGCATTAAATGAATCGGCCCAACGCCGGGGAG
3100 AGCGGTTTGGGTATTGGGGGCTCTTCCGGCTTCCTCGCTCACTGACTCGCTGCGCTCGGTCGTTTCGGCTGCCGGCAGCGGTATCAGCTCACTCAAAGGCG
< COLE1 ORIGIN
3200 GTAATACGGTTATCCACAGAATCAGGGGATAACGAGGAAGAACATGTAGCAAAAGGCCAGCAAAAGGCCAGGAACCGTAAAAAGGCCGCGTTGCTGG
COLE1 ORIGIN >

FIG. 16(B) CONT.

3300 CGTTTTTCCATAGGCTCCGCCCCCTGACGAGCATCACAAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAAGATAACCAGGCGTT
 COLE1 ORIGIN >
 3400 TCCCCCTGGAAGCTCCCTCGTGGGCTCTCCTGTTCGACCCCTGCCGCTTACCGGATACCTGTCCGCCCTTCTCCCTTCGGGAAGCGTGGCGCTTCTCAT
 COLE1 ORIGIN >
 3500 AGCTACGCTGTAGGTATCTCAGTTCGGTGTAGGTCGTTCCGCTCCAAGCTGGGCTGTGTGCACGAACCCCGTTCAGCCCCGACCGCTGCGCCTTATCCG
 COLE1 ORIGIN >
 3600 GTAACATCGTCTTGAGTCCAACCCGGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGGCGGTGC
 COLE1 ORIGIN >
 3700 TACAGAGTTCTTGAAGTGGTGGCCTAACACTACGGCTACACTAGAAGGACAGTATTGGTATCTGGCTCTGCTGAAGCCAGTTACCTTCGGAAAAAAGAGTT
 COLE1 ORIGIN >
 3800 GGTAGCTCTTGATCCGGCAACAAACCACCGCTGGTAGCGGTGTTTTTTGTTGTGCAAGCAGCAGATTACGGCGCAGAAAAAAGGATCTCAAGAAGATC
 COLE1 ORIGIN >
 3900 CTTTGATCTTTTACGGGGTCTGACGCTCAGTGGAACGAAAAACTCACGTTAAGGGATTTTGGTCATGAGATTATCAAAAAGGATCTTCACCTAGATCCT
 COLE1 ORIGIN >
 4000 TTAAATTAATAATGAAGTTTAAATCAATCTAAAGTATATATGAGTAAACTTGGTCTGACAGTTACCAATGCTTAATCAGTGAGGCACCTATCTCAGCG
 COLE1 ORIGIN >
 4100 ATCTGCTATTTTCGTTTCATCCATAGTTGCCTGACTCCCGTCGTGTAGATAAAGTACGATACGGGAGGCTTACCAATCTGGCCCCCAGTGCTGCAATGATAC
 AMPICILLIN RESISTANCE
 AMPICILLIN RESISTANCE >

FIG. 16(B) CONT.

4200 CGCGAGACCCACGCTCACCGGCTCCAGATTATCAGCAATAAACACGACCCAGCCGGAAGGCCGAGCGCAGAAGTGGTCCTGCAACTTTATCCGCCCTCCAT
 AMPCILLIN RESISTANCE >
 4300 CCAGTCTATTAAATTGTTGCCGGGAAGCTAGAGTAAGTAGTTCGCCAGTTAATAGTTTGGCAACGTTGTTGCCATTGCTACAGGCATCGTGGTGTACAGCG
 AMPCILLIN RESISTANCE >
 4400 TCGTCGTTTGGTATGGCTTCATTACAGCTCCGGTTCCTCAACGATCAAGGCGAGTTACATGATCCCCCATGTTGTGCAAAAAAGCGTTAGCTCCTTCGGGTC
 AMPCILLIN RESISTANCE >
 4500 CTCCGATCGTTGTCAGAAGTAAGTTGGCCGCGAGTGTTATCACTCATGGTTATGGCAGCACTGCATAAATTCTCTTACTGTCTATGCCATCCGTAAGATGCTT
 AMPCILLIN RESISTANCE >
 4600 TTCTGTGACTGGTGAGTACTCAACCAAGTCATTCTGAGAATAGTGTATGCGGGCAGCCGAGTTGCTCTTGCCTGGGTCAATACGGGATAATACCGCGCCA
 AMPCILLIN RESISTANCE >
 4700 CATAGCAGAACTTTAAAAGTGCTCATCATTTGGAAAACGTTCTTCGGGGCGAAACTCTCAAGATCTTACCGCTGTTGAGATCCAGTTCGATGTAACCCA
 AMPCILLIN RESISTANCE >
 4800 CTCGTGCCACCCAACTGATCTTCAGCATCTTTTACTTTCACGAGCGTTTCTGGGTGAGCAAAAAACAGGAAGCAAAATGCCGCAAAAAGGGAATAAGGCG
 AMPCILLIN RESISTANCE >
 4900 GACACGGAAATGTTGAATACTCATACTCTTCCTTTTCAATATTATTGAAGCATTTATCAGGGTTATTGTCTCATGAGCGGATACATATTGAATGTATT
 AMPCILLIN RESISTANCE >
 TAGAAAAATAAACAAATAGGGGTTCCGGCGCACATTTCCCCCGAAAGTGCCAC -- (SEQ ID NO:52) --

FIG. 16(B) CONT.

pXL-Bac-ECFP

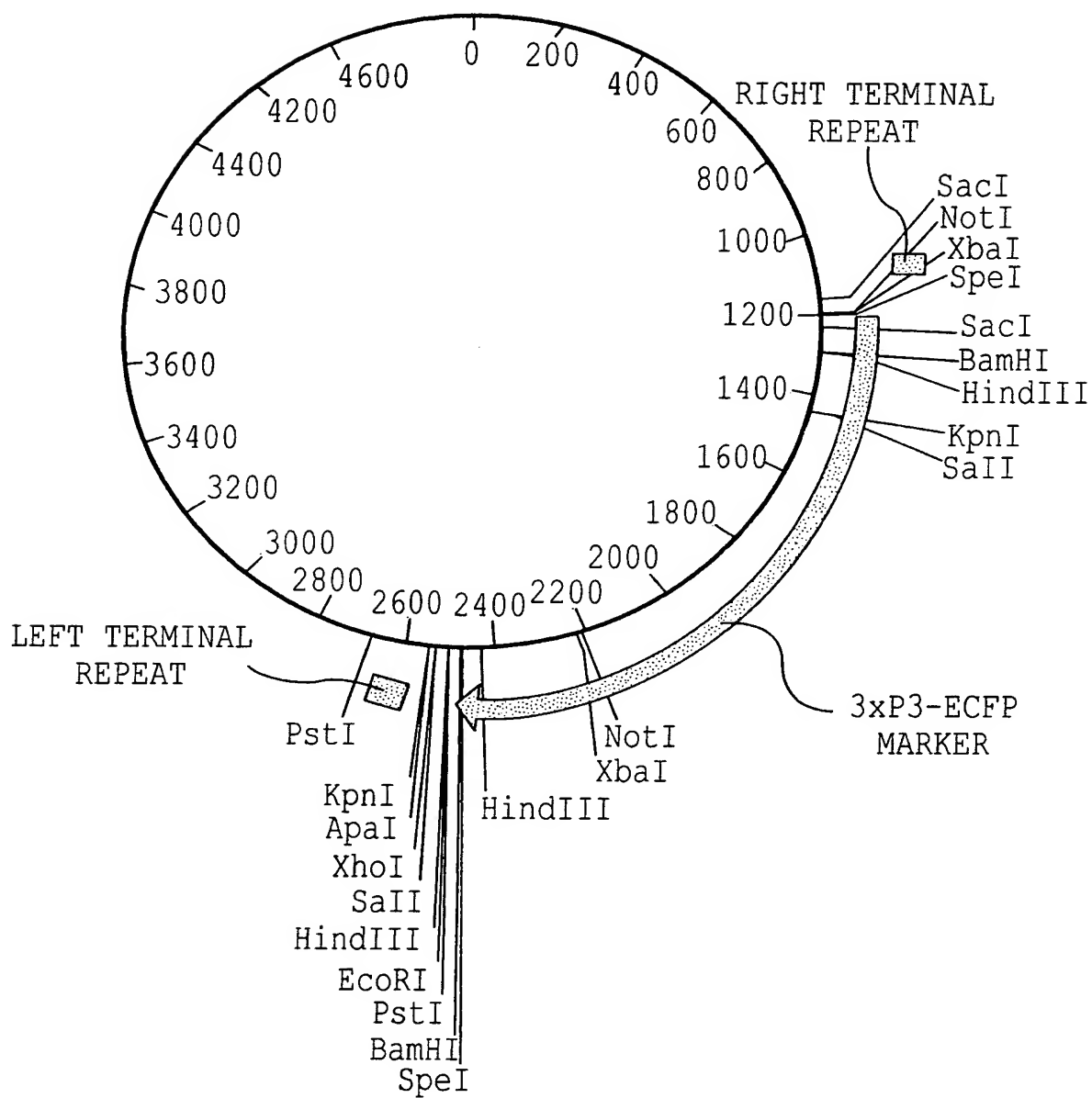


FIG. 17A

pXL-Bac-ECFP

Sequence Range: 1 to 4941

```
100 CTAAATTGTAAGCGTTAATATTTTGTAAAAATTCGCGTTAAATTTTGTGTTAAATCAGCTCATTTTAAACCAATAGGCCGAAATCGGCAGAAATCCCTTAT
200 AAATCAAAGAATAGACCGAGATAGGGTTGAGTGTGTTGTTCCAGTTTGGAACAAGAGTCCACTATTAAAGAACGTGGACTCCAACGTCAAAGGGCGGAAAAA
300 CCGTCTATCAGGGCGATGGCCCACTACGTGAACCATCACCCCTAATCAAGTTTITGGGGTCGAGGTGCCGTAAAGCACTAAATCGGAACCCCTAAAGGGAG
400 CCCCCGATTTAGAGCTTAGACGGGAAAGCCGGCGAACGTGGCGAGAAAGGAAGGAAGAGCGGGCGCTAGGGCGCTGGCAAGTGTAGCG
500 GTCACGCTGGCGGTAAACCAACACACCCGCCGCGCTTAATGCGCCGCTACAGGGCGCGTCCCATTTCGCCATTTCAGGCTGGCAACTGTTGGGAAGGGCGAT
600 CGGTGCGGGCCTCTTCGCTATTACGCCAGCTGGCGAAAGGGGGATGTGCTGCAAGCGGATTAAGTTGGTTAACGCCAGGGTTTTCGCCAGTCACGACGTTG
700 TAAACGACGGCCAGTGAGCGGCGCCCGCGGGTAACTCACGGGGTATCCATGTCCATTCTGCGGCATCCAGCCAGGATACCCGTCCTCGCTGACGTAAT
800 ATCCCAGCGCGCACCGCTGTCAATTAATCTGCACACCGGCACGGCAGTTCCGGGTGTCCGGGTATTGTTCCGGTTGCTGATGCGCTTCGGGCTGACCAT
900 CCGGAACGTGTCCGGAAAGCCGGACGAACTGGTATCCCAGGTGGCCTGAACGAACAGTTCACCGTTAAAGCGGTGCATGGCCACACCTTCCCCGAATC
1000 ATCATGGTAAACGTGCGTTTTCGCTCAACGTCAATGCAGCAGCAGTCATCCTCGGCAAACTCTTTCCATGCCGCTTCAACCTCGCGGGGAAAAAGGCACGGG
1100 CTTCCTCCTCCCCGATGCCCAGATAGCGCCAGCTTGGGGGATGACTGAGCCGGAAAAAGACCCGAGATATGATCCTGTATGCAGCTAGATTAAACCCCTAG
```

FIG. 17(B)

< _____

1200
 AAAGATAGTCTGCGTAAATTTGACCGCATGATCTAATTAAACCCTCACTAAAGGGAACAAAAGCTGGAGCTCCACCGGGTGGCGGCTCTAGAACTAGT
 < RIGHT TERMINAL REPEAT _____
 1300
 GTTCCCACAATGGTTAATTCGAGCTCGCCCCGGGATCTAATTCAATTAGAGACTAATTCAATTAGAGCTAATTCAATTAGGATCCAAGCTTATCGATTTC
 3XP3-ECFP MARKER
 1400
 GAACCCCTCGACCGCGGAGTATAAATAGAGGCGCTTCGTCTACGGAGCGGACAATTCAATTCAACAAGCAAAGTGAAACACGTCGCTAAGCGAAAGCTAAG
 3XP3-ECFP MARKER
 1500
 CAAATAACAAGCGCAGCTGAACAAGCTAAACAATCGGGGTACCGGTAGAGTCGACGGTAGCATCCACCGTCCGCCACCATGGTGAGCAAGGGCGGAGGAG
 3XP3-ECFP MARKER
 1600
 CTGTTACCGGGGTGGTGCCCATCCTGGTCGAGCTGGACGGCGACGTAACACGGCCACAAGTTCAGCGTGTCCGGCAGGGCGGCGGATGCCACCTACG
 3XP3-ECFP MARKER
 1700
 GCAAGCTGACCCCTGAAGTTCATCTGCACCCACCGGAAGCTGCCCGTGCCCTGCCACCCCTCGTGACCAACCCTGACCTGGGGCGTGCAGTGCTTCAGCCG
 3XP3-ECFP MARKER
 1800
 CTACCCCGACCACATGAAGCAGCAGGACTTCTTCAAGTCCGCCATGCCCGAAGGCTACGTCCAGGAGCGCACCATCTTCTTCAAGGACGACGGCAACTAC
 3XP3-ECFP MARKER
 1900
 AAGACCCGCGCGAGGTGAAGTTCGAGGGCGACACCCCTGGTGAACCGCATCGAGCTGAAGGCGATCGACTTCAAGGAGGACGGCAACATCCTGGGGCACA
 3XP3-ECFP MARKER
 2000
 AGCTGGAGTACAACCTACATCAGCCACAACGCTATATCACCCGCGACAAGCAGAAGAACGGCATCAAGGCCAACTTCAAGATCCGCCACAACATCGAGGA
 3XP3-ECFP MARKER

FIG. 17(B) CONT.

```

2100 CCGCAGCGTGCCGACCACTACCAGCAGAACACCCCATCGGCGACGGCCCGTGTGCTGCCCGACAACCACTACCTGAGCACCCAGTCCGCC
      3XP3-ECFP MARKER
2200 CTGAGCAAAGACCCCAACGAGAGCGCGATCACATGGTCTCTGTGGAGTTCTGTGACCCGCCCGGGATCACTCTCGGCATGGACGAGCTGTACAAGTAAA
      3XP3-ECFP MARKER
2300 GCGGCCGCGACTCTAGATCATATAATCAGCCATACCACATTGTAGAGGTTTACTTGTCTTAAAAAACCTCCCACACCTCCCCCTGAACCTGAACATAAA
      3XP3-ECFP MARKER
2400 ATGAATGCAATTGTTGTTGTTAACTTGTTCAGCTTATAATGGTTACAAATAAAGCAATAGCATCACAAATTTACAAATAAAGCATTTTTTTCAC
      3XP3-ECFP MARKER
2500 TGCAATCTAGTTGTGTTGTCCAAACTCATCAATGTATCTTTAAAGCTTATCGATACGCGTACGCGCTAGTGGATCCCCCGGGCTGCAGGAATTTCGATA
      3XP3-ECFP MARKER
2600 TCAAGCTTATCGATACCGTCGACCTCGAGGGGGGGCCCGGTACCCAAATTCGCCCTATAGTAGTCGTATTAAGATCACGCGTAGATCCATGCGTCAATTT
      <
2700 TACGCAATGATTATCTTTAACGTACGTCACAAATATGATTATCTTTCTAGGGTTAATCTAGCTGCGTGTCTGACGCGTGTGCGAGCATCTTTCATCTGCTCCA
      LEFT TERMINAL REPEAT
2800 TCACGCTGTAAACACATTTGCACCGCGAGTCTGCCCGTCTCCACGGTTCAA AAAACGTGAATGAACGAGGGCGGCTTGGCGTAATCATGGTCATAGCT
2900 GTTTCCTGTGAAATTGTTATCCGCTCACAAATCCACACAACATACGAGCCGGAAGCATAAAGTGTAAAGCCTGGGGTGCCTAATGAGTGAGCTAACTC
3000 ACATTAAATTGCGTTCAGTCACTGCCCGCTTTCAGTCCGGAAACCTGTCTGTGCCAGCTGCATTAATGAATCGGCCAACGCGGGGAGAGCGGTTTGC

```

FIG. 17(B) CONT.

```

>ColE1_origin
|
|
3100 GTATTGGCGCTCTTCCGCTTCCTCGCTCACTGACTCGCTCGGCTCGGTCGTTCCGGCTGCGGCGAGCGGTATCAGCTCAAAAGGCGGTAAATACGGTT
3200 ATCCACAGAAATCAGGGGATAACGCAGGAAGAACAATGTAGCAAAAGGCCAGCAACCGTAAAAAGGCCGCTTGCTGGCGTTTTCCTCCAT
3300 AGGCTCGGCCCCCTGACGAGCATCACAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGCACGAGACTATAAAGATACCAGGCGTTTCCCCCTGGAA
3400 GCTCCCTCGTGCGCTCTCCTGTTCGACCCCTGCCGCTTACCGGATACCTGTCCGCCCTTCTCCCTTCGGGAAGCGTGGCGCTTCTCATAGCTCACGCTG
3500 TAGGTATCTCAGTTCGGTGTAGGTCGTTCCAGCTGGGCTGTGTGCACGAACCCCCCGTTACGCCCGACCGCTTATCCGGTAACTATCGT
3600 CTTGAGTCCAACCCGGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGCGGTGCTACAGAGTTCT
3700 TGAAGTGGTGGCCTAACTACGGCTACACTAGAAGCACAGTATTGGTATCTCGGCTCTGCTGAAGCCAGTTACCTTCGGAAAAAGAGTTGGTAGCTCTTG
3800 ATCCGGCAACAAACACCCGCTGGTAGCGGTGGTTTTTTTTTGTGCAAGCAGCAGATTACGGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCTTT
3900 TCTACGGGTCTGACGCTCAGTGGAAACGAAAACTCACGTTAAGGGATTTTGGTCATGAGATTATCAAAAAGGATCTTCACCTAGATCCTTTTAAATAAA
4000 AATGAAGTTTAAATCAATCTAAAGTATATATGAGTAAACTTGGTCTGACAGTTACCAATGCTTAATCAGTGAGGCACCTATCTCAGCGATCTGTCTATT
_____ AMPCILLIN RESISTANCE _____>

```

FIG. 17(B) CONT.

4100 TCGTTCATCCATAGTTGCCCTGACTCCCCGTCGTGTAGATAACTACGATACGGAGGGCTTACCATCTGCCCCAGTGTGCAATGATACCGCGAGACCCA
 AMPICILLIN RESISTANCE >
 4200 CGCTCACCGGCTCCAGATTATCAGCAATAAACCCAGCCAGCCGGAAGGCCGAGCGCAGAAAGTGGTCGTGCAACTTTATCCGCCCTCCATCCAGTCTATTA
 AMPICILLIN RESISTANCE >
 4300 ATTGTTGCCGGGAAGCTAGAGTAAGTAGTTCGCCAGTTAATAGTTTCCGCAACGTTGTTGCCATTGCTACAGGCATCGTGGTGTACGGCTCGTCGTTGG
 AMPICILLIN RESISTANCE >
 4400 TATGGCTTCATTCAGCTCCGGTTCCTCAACGATCAAGCGGAGTTACATGATCCCCCATGTTGTGCAAA²AAGCGGTTAGCTCCTTCGGTCCCTCCGATCGTT
 AMPICILLIN RESISTANCE >
 4500 GTCAGAAGTAAGTTGGCCGCAGTGTTATCACTCATGTTATGGCAGCACTGCATAATTCTCTTACTGTCTATGCCATCCGTAAGATGCTTTTCTGTGACTG
 AMPICILLIN RESISTANCE >
 4600 GTGAGTACTCAACCAAGTCATTCTTGAGAATAGTGTATGCCGGCAGCCGAGTTGCTCTTGGCCCGCGTCAATACGGGATAATACCGGCCACATAGCAGAAC
 AMPICILLIN RESISTANCE >
 4700 TTTAAAGTGCTCATCATTTGGAAACGTTCTTCGGGGCGGAAACTCTCAAGGATCTTACCCGCTGTTGAGATCCAGTTCGATGTAAACCCACTCGTGCACCC
 AMPICILLIN RESISTANCE >
 4800 AACTGATCTTCAGCATCTTTTACTTTTACCAGCGTTTCTGGGTGAGCAAAAACAGGAAGGCAAAATGCCGCAAAAAGGGAATAAGGGCGACACGGAAAT
 AMPICILLIN RESISTANCE >
 4900 GTTGAATACTCATACTCTTCCTTTTCAATATATTGAAGCATTATCAGGGTTATTGTCTCATGAGCGGATACATATTTGAATGTATTTAGAAAAATAA
 AMPICILLIN R >
 ACAAAATAGGGGTTCCGGCGCACATTTCCCCGAAAAAGTGCCAC -- (SEQ ID NO:53) --

FIG. 17(B) CONT.

pBS-ITR-ECFP

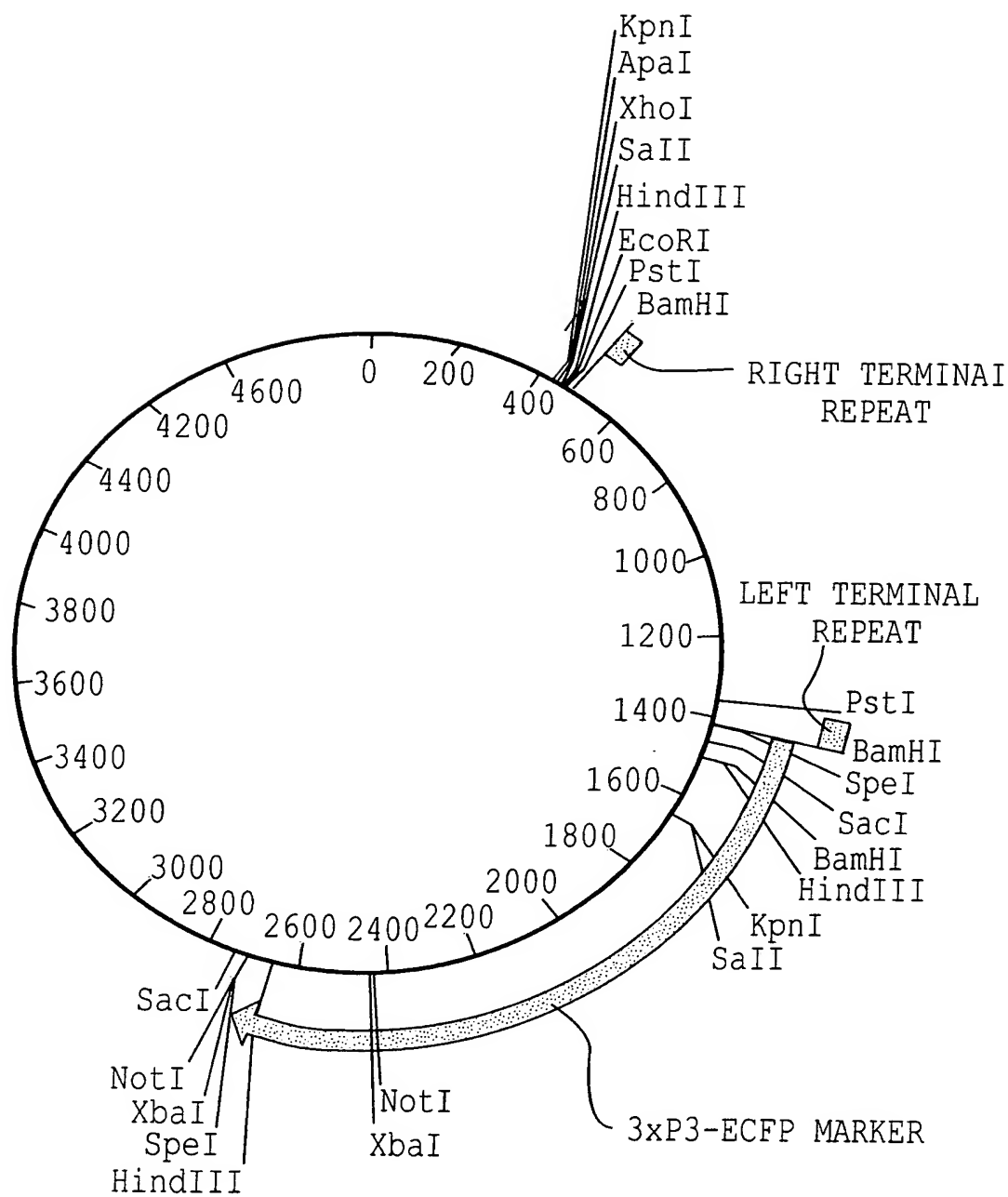


FIG. 18A

PBS-ITR-ECFP

Sequence Range: 1 to 4943

```
100  CACCTGACGGCCCTGTAGCGGCGCATTAAAGCGGGGGGTGTGTGGTTACGCCAGCGGTGACCGCTACACTTGCCAGGCCCTAGCGCCCGCTCCTTT
200  CGCTTCTTCCCTTCTTCGCCACGTTCCGCCGGCTTCCCCGTCAAGCTCTAAATCGGGGGCTCCCTTTAGGGTTCGGATTAGTGCTTTACGGGCAC
300  CTCGACCCCAAAACTTGATTAGGGTGATGGTTCACGTAGTGGGCCATCGCCCTGATAGACGGTTTTTCGCCCTTTGACGTTGGAGTCCACGTTCTTTA
400  ATAGTGGACTCTTGTTCCAAACCTGGAACAACACTCAACCTATCTCGGTCTATTCTTTTGATTATAAGGGATTTTGCCGATTTCCGGCCTATTGGTTAAA
500  AAATGAGCTGATTTAACAAAAAATTTAACGCGAATTTTAACAAAAATATTAAACGCTTACAAATTCGCCATTCAGGCTGCGCAACTGTTGGGAAGGGC
600  GATCGGTGGGGCCTCTTCGCTATTACGCCAGCTGGCGAAAGGGGATGTGCTGCAAGCGATTAAAGTTGGTAACGCCAGGGTTTTCCCAGTCACGACG
700  TTGTAAACGACGGCCAGTGAATTGTAATACGACTCACTATAGGCGGAATTGGGTACCGGGCCCCCTCGAGGTCGACGGTATCGATAAGCTTGATATC
800  GAATTCCAGCCCCGGGGATCCCATGCGTCAATTTTACGCAGACTATCTTTCTAGGGTTAATCTAGCTGCATCAGGATCATATCGTCGGGTCTTTTT
900  _____
    RIGHT TERMINAL REPEAT >
CGGGCTCAGTCATCGCCCCAAGCTGGCGCTATCTGGGCATCGGGGAGGAAGCCCCGTGCCCTTTCCCGCGAGGTTGAAGCGGCATGGAAAGAGTTTGCC
1000 GAGGATGACTGCTGCTGCATTGACGTTGAGCGAAACGCACGTTTACCATGATGATTTCGGGAAGGTGTGGCCATGCACGCCCTTTAACGGTGAACTGTTCG
1100 TTCAGGCCACCTGGGATACCAGTTCGTCCGGGCTTTTCCGGACACAGTTCGGATGGTCAGCCCGAAGCGCATCAGCAACCCGAACAATACCGGCGACAG
```

FIG. 18(B)

```

1200 CCGAACTGCCGTGCCAGATTAAATGACAGCGGTGCGGCTGGGATATTACGTACGAGGACGGGTATCCTGGCTGGATGCCCGCAGAAATGG
1300 ACATGGATACCCCGTGAGTTACCCGGGGGCTCGTTCAATTCACGTTTTGAACCCGTGGAGGACGGGCAGACTCGCGGTGCAAAATGTGTTTACAGCGGTGA
1400 TGGAGCAGATGAAGATGCTCGACACGCTGCAGAACACGCAGCTAGATTAAACCCTAGAAAGATAATCATATTTGTGACGTACGTTAAAGATAATCATGCGTA
1500 AAATTGACGCATGGGATCCACTAGTGTTCACCAATGGTTAATTCGAGCTCGCCCGGGATCTAATTCAATTAGAGACTAATTCAATTAGAGCTAATTCA
3XP3-ECFP MARKER
1600 ATTAGGATCCAAGCTTATCGATTTCGAACCCCTCGACCCGGCGAGTATAAATAGAGCGGCTTCGTCTACGGAGCGACAATTCAATTCAAAACAAGCAAAGTG
3XP3-ECFP MARKER
1700 AACACGTCGCTAAGCGAAAGCTAAGCAAATAAACAAAGCGCAGCTGAACAAAGCTAAACAAATCGGGGTACCGCTAGAGTCGACGGTACGATCCACCGGTCCG
3XP3-ECFP MARKER
1800 CACCATGGTGAGCAAGGCGGAGGAGCTGTTACCGGGGTGGTGCCCATCCTGTCGAGCTGGACGGCGACGTAAACGGCCACAAGTTCAGCGGTGTCGGGC
3XP3-ECFP MARKER
1900 GAGGGCGAGGGCGATGCCACCTACGGCAAGCTGACCCCTGAAGTTCATCTGCACCACCGGCAAGCTGCCCCGTGCCCTGGCCCCACCCCTCGTGACCACCCCTGA
3XP3-ECFP MARKER
2000 CCTGGGGCGTCAGTGCTTCAGCCGCTACCCCGACCAACATGAAGCAGCAGCACTTCTTCAAGTCCGCCATGCCCCGAAGGCTACGTCCAGGAGCGCACCAT
3XP3-ECFP MARKER
2100 CTTCCTCAAGGACGACGGCAACTACAAGACCCCGCCGAGGTGAAGTTCGAGGGCGACACCCCTGGTGAACCGCATCGAGCTGAAGGGCATCGACTTCAAG
3XP3-ECFP MARKER

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FIG. 18(B) CONT.

```

2200 GAGGACGGCAACATCCTGGGGCACAAGCTGGAGTACAACACTACATCAGCCACAACGTCCTATATCACCGCCGACAGCAAGAACGGCATCAAGGCCAACT
      3XP3-ECFP MARKER
2300 TCAAGATCCGCCACAACATCGAGGACGGCAGCGTGCAGCTCGCCGACCACTACCAGCAGAACACCCCCATCGGGCAGCGGCCCGTGCTGCCCGACAA
      3XP3-ECFP MARKER
2400 CCACTACCTGAGCACCCAGTCCGCCCTGAGCAAAAGACCCCAACGAGAGCGCGATCACATGGTCCTGCTGGAGTTCGTGACCGCCGCGGGATCACTCTC
      3XP3-ECFP MARKER
2500 GGCAATGGACGAGCTGTACAAGTAAAGCGGCGCGGACTCTAGATCATAATCAGCCATACCACATTTGTAGAGGTTTTACTTGCTTTAAAAAACCTCCCCACA
      3XP3-ECFP MARKER
2600 CCTCCCCCTGAACCTGAAACATAAATGAATGCAATTGTTGTTAACTTGTTATTCAGCCTTATAATGGTTACAAATAAAGCAATAGCATCACAAAT
      3XP3-ECFP MARKER
2700 TTCACAAATAAAGCAATTTTTCACCTGCATTCTAGTTGGTTGTGCCAAACTCATCAATGTATCTTAAAGCTTATCGATACGCGTACGGCGCGCCTAGG
      3XP3-ECFP MARKER
2800 CCGGCCGATACTAGTTCTAGAGCGGCGGCCACCGCGGTGGAGCTCCAGCTTTTGTTCCCTTTAGTGAGGGTTAATTTTCGAGCTTGGCGTAATCATGGTCA
      >
2900 TAGCTGTTTCCTGTGTGAAATTGTTATCCGCTCACAAATCCACACAACATACGAGCCGGAAGCATAAAGTGTAAAGCCTGGGTGCCCTAATGAGTGAGCT
3000 AACTCACATTAAATTGCGTTGCGGCTCACTGCCCCGCTTCCAGTCGGGAAACCTGTCTGTCGACGCTGCATTAAATCGGCCAACGCGGGGGAGAGGGCGG

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FIG. 18(B) CONT.


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>Cole1_origin
|
|
3100 TTTGGCTATTGGGCGCTCTTCCGCTTCCTCGCTCACTGACTCGTGGCTCGGTGCTTCGGCTGCGGCGAGCGGTATCAGCTCACTCAAAGGCGGTAATA
3200 CGGTTATCCACAGAAATCAGGGGATAACGCAGGAAGAACAATGTGAGCAAAAAGGCCAGGAACCGTAAAAAGCCGCTTGCTGGCGTTT
3300 TCCATAGGCTCCGCCCCCTGACGAGCATCAAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGCACAGGACTATAAGATACCAAGCGTTTCCCCC
3400 TGGAACTCCCTCGTGGGCTCTCCTGTTCGACCCCTGCCGCTTACCGGATACCTGTCCGCCCTTTCCTCCCTTCGGGAAGCGTGGCGCTTCTCATAGCTCA
3500 CGCTGTAGGTATCTCAGTTCGGGTAGGTGCTTCGCTCCAAGCTGGGCTGTGTGCACGAACCCCCGTTTCAGCCCCGACCGCTTATCCGGTAAC
3600 ATCGTCTTGAGTCCAACCCGGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGCGGTGCTACAGA
3700 GTTCTTGAAGTGGTGGCCTAACACTACGGCTACACTAGAAGGACAGTATTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGGAAAAAGAGTTGGTAGC
3800 TCTTGATCCGGCAACAAACCACCGCTGGTAGCGGTGGTTTTTTTGTTCGAAGCAGCAGATTACGGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGA
3900 TCTTTTCTACGGGGTCTGACGCTCAGTGGAAACGAAACTCACGTTAAGGGATTTTGGTCATGAGATTATCAAAAAAGGATCTTCACCTAGATCCTTTTAAA
4000 TTAAAAATGAAGTTTAAATCAATCTAAAGTATATATGAGTAAACTTGGTCTGACAGTTACCAATGCTTAAATCAGTGAGGCACCTATCTCAGCGATCTGT
4100 CTATTTCGTTCATCCATAGTTGCCTGACTCCCCCGTCGTGTAGATAACTACGATACGGGAGGGCTTACCATCTGGCCCCAGTGCTGCAATGATACCGCGAG
      AMPCILLIN RESISTANCE
      AMPCILLIN RESISTANCE
>

```

FIG. 18(B) CONT.

4200
 ACCCAGGCTCACCGGCTCCAGATTATCAGCAATAAACAGCCAGCCGGAAGGCCGAGCGCAGAGTGGTCCTGCAACTTTATCCGGCCTCCATCCAGTC
 AMPICILLIN RESISTANCE >
 4300
 TATTAAATTGTTGCCGGGAAGCTAGAGTAAGTAGTTCGCCAGTTAATAGTTTGGCAACGTTGTTGCCATTGCTACAGGCATCGTGGTGTCAGCGTCGTGCG
 AMPICILLIN RESISTANCE >
 4400
 TTTGGTATGGCTTCATTCAGCTCCGGTTCCCAACGATCAAGCGAGTTACATGATCCCCCATGTTGTGCAAAAAGCGGTAGCTCCTTCGGTCCTCCGA
 AMPICILLIN RESISTANCE >
 4500
 TCGTTGTCAGAAAGTAAGTTGGCCGCAGTGTATCACTCATGTTATGGCAGCACTGCATAATTCTCTTACTGTGTCATGCCATCCGTAAGATGCTTTTCTGT
 AMPICILLIN RESISTANCE >
 4600
 GACTGGTGAGTACTCAACCAAGTCATTCTGAGAATAGTGTATCGGGCACCAGTTGCTCTTGCCCCGGCGTCAATACGGGATAATACCGGCCACATAGC
 AMPICILLIN RESISTANCE >
 4700
 AGAACTTTAAAAGTGCTCATCATTTGGAAACGTTCTTCGGGGCGAAAACCTCTCAAGGATCTTACCGCTGTTGAGATCCAGTTCGATGTAACCCACTCGTG
 AMPICILLIN RESISTANCE >
 4800
 CACCCAACTGATCTTCAGCATCTTTTACTTTCACCAGCGTTTCTGGGTGAGCAAAAACAGGAAGCAAAATGCCCGCAAAAAGGGAATAAGGGCGACACG
 AMPICILLIN RESISTANCE >
 4900
 GAAATGTTGAATACTCATACTCTTCCCTTTTCAATATTATTGAAGCATTATCAGGGTTATTGTCCTCATGACGGATACATATTGAAATGATTATGAAA
 AMPICILLIN RESISTANCE >
 AATAAACAAATAGGGTTCCGGCGCACATTTCCCCGAAAAGTGC -- (SEQ ID NO:54) --

FIG. 18(B) CONT.

pBS-ITR-EGFP

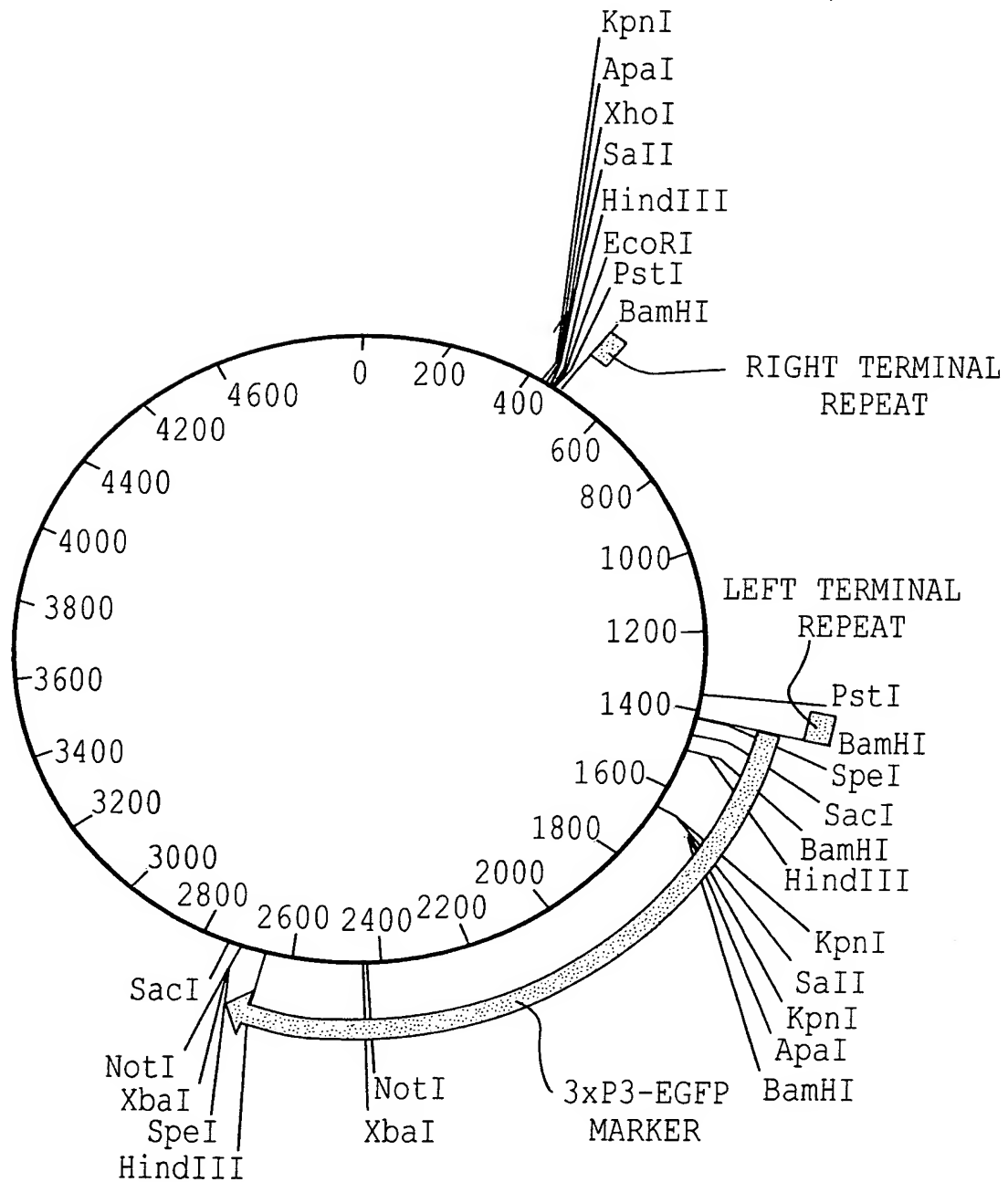


FIG. 19A

PBS-ITR-EGFP
Sequence Range: 1 to 4944

100
CACCTGACGGCCCTGTAGCGGCGGCATTAAAGCGCGGGGGTGTGGTTACGGCAGCGTGACCGCTACACTTGCCAGGCCCTAGCGCCCGTCCTTT
200
CGCTTTCTTCCCTTCTTCGCCACGTTCCCGGGCTTTCCCGCTCAAGCTCTAAATCGGGGGCTCCCTTTAGGGTTCCGATTAGTGCTTTACGGCAC
300
CTCGACCCCAAAACTTGATTAGGGTGATGGTTCACGTAGTGGGCCATCGCCCTGATAGACGGTTTTTCGCCCTTTGACGTTGGAGTCCACGTTCTTTA
400
ATAGTGGACTCTTGTTCCAAACCTGGAACAACACTCAACCTATCTCGGTCTATTCTTTTGATTATAAGGGAATTTTGGCCGCTATTGGTTAAA
500
AAATGAGCTGATTTAACAAAATTTAACGGGAATTTAACAAAATATTAAACGCTTACAATTTCCATTTCGCCATTTCAGGCTGCGCAACTGTTGGGAAGGCG
600
GATCGGTGGGGCCTCTTCGCTATTACGCCAGCTGGCGAAAGGGGATGTGCTCAAGGCGATTAAAGTTGGTAACGCCAGGGTTTTTCCCAGTCACGACG
700
TTGTAAACGACGGCCAGTGAATTGTAATACGACTCACTATAGGCGGAATTGGTACCGGGCCCCCTCGAGTCCGACGGTATCGATAAGCTTGATATC
800
GAATTCCCTGCAGCCCCGGGGATCCCATGCGTCAATTTTACGCAGACTATCTTTCTAGGGTTAATCTAGCTGCATCAGGATCATATCGTCGGGTCTTTTT
900
_____ RIGHT TERMINAL REPEAT _____>
CCGGCTCAGTCATCGCCCCAAGCTGGCGCTATCTGGGCATCGGGGAGGAAGACCCCGTGCCCTTTTCCCGCAGGGTTGAAGCGGCATGGAAAGAGTTTGCC
1000
GAGGATGACTGCTGCTGCAATTGACGTTGAGCGAAACCGCACGTTTACCATGATGATTTCGGGAAGGTGTGGCCATGCACGCCCTTTAACGGTGAACTGTTCG
1100
TTCAGGCCACCTGGGATACCAGTTCGTCCGGGCTTTTCCGGACACAGTTCGGATGGTCAGCCCGAAGCGCATCAGCAACCCGAACAATACCGGGCAGAG

FIG. 19(B)

```

1200 CCGAACTGCCGTGCCGGTGCAGATTAAATGACAGCGGTGCGGGCTGGGATATTACGTCAGCGAGGACGGGTATCCTGGCTGGATGCCGCAGAAATGG
1300 ACATGGATACCCCGTGAGTTACCCGGCGGCTCGTTCAATTCACGTTTTTGAACCCGTGGAGGACGGGCAGACTCGCGGTGCAAAATGTGTTTTACAGCGGTGA
1400 TGGAGCAGATGAAGATGCTCGACACGCTGCAGAAACACGCAGCTAGATTAAACCTAGAAAGATAATCATATTTGTGACGTACGTTAAAGATAATCATGCGGTA
1500 _____
    LEFT TERMINAL REPEAT
AAATTGACGCATGGGATCCACTAGTGTTCACACAATGGTTAATTCGAGCTCGCCCGGGGATCTAATTCAATTAGAGACTAATTCAATTAGAGCTAAATTCA
    _____
    3XP3-EGFP MARKER
1600 ATTAGGATCCAAGCTTATCGATTTCGAACCTTCGACCGCGCGGAGTATAAATAGAGCGGCTTCGCTCTACGGAGCGACAATTCAATTCAACAAGCAAAGTG
    _____
    3XP3-EGFP MARKER
1700 AACACGTCGCTAAGCGAAAGCTAAGCAATAAACAAGCGCAGCTGAACAAGCTAAACAATCGGGGTACCGCTAGAGTCGACGGTACCGCGGGCCCGGGAT
    _____
    3XP3-EGFP MARKER
1800 CCACCGGTGCCACCATGGTGAGCAAGGGCGAGGAGCTGTTACCCGGGGTGGTGCCCATCCTGGTGCAGCTGGACGGCGACGTAAACGGCCACAAGTTCA
    _____
    3XP3-EGFP MARKER
1900 GCGTGTCCGGCGAGGGCGAGGCGGATGCCACCTACGGCAAGCTGACCCCTGAAGTTCATCTGCACCACCGGCAAGCTGCCCTGGCCCCACCCCTCGT
    _____
    3XP3-EGFP MARKER
2000 GACCACCCCTGACCTACGGCGTGCAGTGCTTCAGCCGCTACCCCGACCATGAAGCAGCACGACTTCTTCAAGTCCGCCCATGCCCCGAAGGCTACGTCCAG
    _____
    3XP3-EGFP MARKER
2100 GAGCGCACCATCTTCTTCAAGGACGACGGCAACTACAAGACCCCGCGGAGGTGAAGTTCGAGGGCGACACCCCTGGTGAACCGCATCGAGCTGAAGGGCA
    _____
    3XP3-EGFP MARKER

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FIG. 19(B) CONT.

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2200 TCGACTTCAAGGAGGCGCAACATCCTGGGGCACAAGCTGGAGTACAACTACAACAGCCACACGTCTATATCATGGCCGACAAGCAGAAGAACGGCAT
    3XP3-EGFP MARKER
2300 CAAGGTGAACCTCAAGATCCGCCCAACATCGAGGACGGCAGCGTGCAGCTCGCCGACCACTACCAGCAGAACACCCCATCGGCGACGGCCCCCGTGCTG
    3XP3-EGFP MARKER
2400 CTGCCCCGACAACCACTACCTGAGCACCAGTCCGCCCTGAGCAAAAGACCCCAACGAGAAAGCGGATCACATGGTCTGCTGGAGTTCGTGACCGCCGCGCG
    3XP3-EGFP MARKER
2500 GGATCACTCTCGGCATGGACGAGCTGTACAAGTAAAGCGGGCGGACTCTAGATCATATAATCAGCCATACCACATTTGTAGAGGTTTACTTGCTTTAAAA
    3XP3-EGFP MARKER
2600 AACCTCCACACCTCCCCCTGAACCTGAAACATAAAATGAATGCAATTGTTGTTAACTTGTTATTGCAGCTTATAATGGTTACAAATAAAGCAATA
    3XP3-EGFP MARKER
2700 GCATCACAAATTCACAAATAAAGCATTTTTTCACTGCATTCTAGTTGTGTTGTCCAAACTCATCAATGTATCTTAAAGCTTATCGATACGCGTACG
    3XP3-EGFP MARKER
2800 GCGCGCCTAGACTAGTTCTAGAGCGGGCCGCCAGCTCCAGCTTTTGTTCCTTTAGTGAGGGTTAATTTTCGAGCTTGGCGTAATCATGGTC
    >
2900 ATAGCTGTTTCCCTGTGTGAAATTGTTATCCGCTCACAAATCCACACAACATACGAGCCGGAAGCATAAAGTGTAAGCCTGGGTGCCCTAATGAGTGAGC
3000 TAACTCACATTAATTGCGGTGCGCTCACTGCCCGCTTCCAGTCGGGAACCTGTCTGTCAGCTGCATTAATGAATCGGCCAACCGCGGGGAGAGGGCG

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FIG. 19(B) CONT.

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3100 GTTTGCGTATTGGGCGCTCTTCCGCTTCCTCGCTCACTGACTCGCTCGGCTCGTTCGGCTGCGGCGAGCGGTATCAGCTCACTCAAAGCGGTAAT
3200 ACGGTTATCCACAGAATCAGGGGATAACGAGGAAGAACAATGTAGCAAAAGCCAGCAAAAGGCCAGAACCGTAAAGGCCGCTTCTGGCGTTT
3300 TTCCATAGGCTCCGGCCCCCTGACGAGCATCACAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAAGATACCAGCGTTTCCCC
3400 CTGGAAGCTCCCTCGTGGCTCTCCCTGTTCCGACCCCTGCCGCTTACCGGATACCTGTCCGCCCTTCTCCCTTCGGGAAGCGTGGCGCTTCTCATAGCTC
3500 ACGCTGAGGTATCTCAGTTCGGTGTAGGTCGTTCCGCTCCAAGCTGGGCTGTGTGCACGAACCCCCCGTTCAGCCCGACCGCTGGCCCTTATCCGGTAAC
3600 TATCGTCTTGAGTCCAAACCCGGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGCGGCTGCTACAG
3700 AGTTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGACAGTATTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGGAAGAGAGTTGGTAG
3800 CTC TTGATCCGGCAACAAACCCGCTGGTAGCGGTGTTTTTTTGTGCAAGCAGCAGATTACGCGCAGAAAAAGGATCTCAAGAAGATCCTTTG
3900 ATCTTTTCTACGGGCTGACGCTCAGTGGAAACGAAACTCACGTTAAGGGATTTTGGTCATGAGATTATCAAAAGGATCTTCACCTAGATCCTTTTAA
4000 ATTAAAAATGAAGTTTAAATCAATCTAAAGTATATATAGTAAACTTGGTCTGACAGTTACCAATGCTTAATCAGTGAGGCACCTATCTCAGCGGATCTG
4100 TCTATTTCGTTCCATAGTTGCCCTGACTCCCCGTCGTGTAGATAACTACGATACGGGAGGGCTTACCATCTGGCCCCAGTGCTGCAATGATACCGCGA
AMPCILLIN RESISTANCE
AMPCILLIN RESISTANCE

FIG. 19(B) CONT.

4200
 GACCCAGCTCACCGGCTCCAGATTATCAGCAATAAACAGCCAGCCGGAAGGGCCGAGCGCAGAAAGTGGTCTTGCAACTTTATCCGGCCTCCATCCAGT
 AMPICILLIN RESISTANCE >
 4300
 CTATTAAATTGTTGCCGGAAGCTAGAGTAAGTAGTTCGCCAGTTAATAGTTTGGCGCAACGTTGTTGCCATTGCTACAGGCATCGTGGTGTACAGCTCGTC
 AMPICILLIN RESISTANCE >
 4400
 GTTTGGTATGGCTTCATTACGCTCCGGTTCCTCCCAACGATCAAGGCGAGTTACATGATCCCCCATGTTGTGCAAAAAAGCGGTTAGCTCCTTCGGTCCCTCCG
 AMPICILLIN RESISTANCE >
 4500
 ATCGTTGTCAGAAGTAAGTTGGCCGCAGTGTATCACTCATGGTTATGGCAGCACTGCATAAATCTCTTACTGTCAIGCCATCCGTAAGATGCTTTTCTG
 AMPICILLIN RESISTANCE >
 4600
 TGA CTGGTGAGTACTCAACCAAGTCATTCTCGAATAAGTGTATGCGGCGACCGAGTTGCTCTTGCCCGGCGTCAATACGGGATAATACCGCGGCCACATAG
 AMPICILLIN RESISTANCE >
 4700
 CAGAACTTTAAAAGTGCTCATCATTTGGAAAACGTTCTTCGGGGCGGAAAACCTCTCAAGGATCTTACCGCTGTTGAGATCCAGTTCGATGTAACCCACTCGT
 AMPICILLIN RESISTANCE >
 4800
 GCACCCAACTGATCTTCAGCATCTTTTACTTTTACCAGCGTTTCTGGGTGAGCAAAAACAGGAAGGCAAAAATGCCGCAAAAAGGGAATAAGGGCGGACAC
 AMPICILLIN RESISTANCE >
 4900
 GGAAATGTTGAATACTCATACTCTTCCTTTTCAATATATTGAAGCATTTATCAGGGTTATTGTCTCATGAGCGGATACATATTTGAATGTATTAGAA
 AMPICILLIN RESISTANCE >
 AAATAAACAAATAGGGTTCCGGCGCACATTTCCCCCGAAAAAGTGC -- (SEQ ID NO:55) --

FIG. 19(B) CONT.

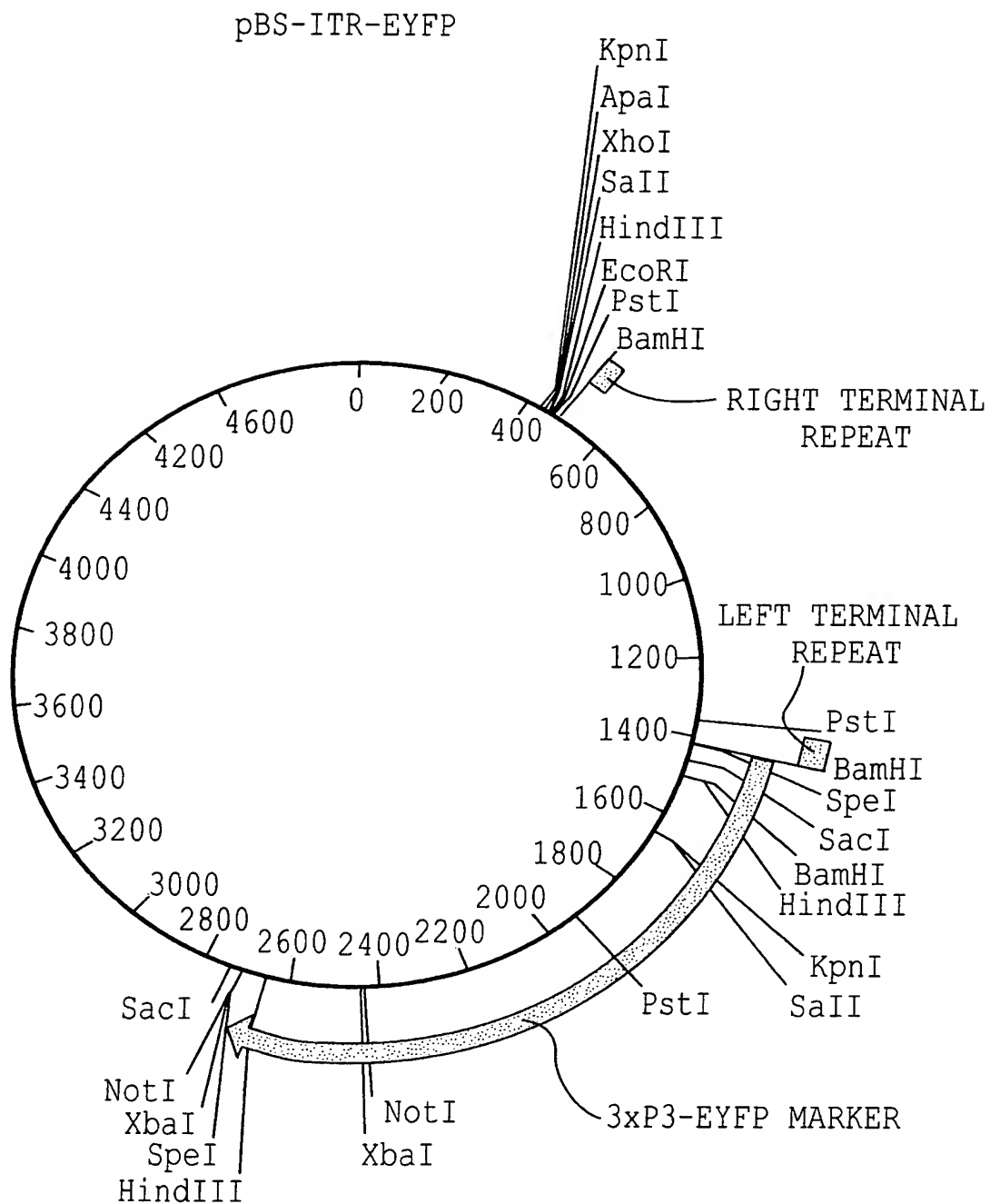


FIG. 20A

pBS-ITR-EYFP
Sequence Range: 1 to 4944

100 CACCTGACGCGCCCTGTAGCGGCGCATTAAGCGCGGGGGTGTGGTTACGGCGAGCGTGACCGCTACACTTGCCAGCGCCCTAGCGCCCGCTCCCTTT
200 CGCTTTCTCCCTTCTCTCGCCACGTTTCGCCGGCTTCGCCCGTCAAGCTCTAAATCGGGGGCTCCCTTTAGGGTTCGATTTAGTGCTTTACGGGCAC
300 CTCGACCCCAAAAACCTTGATTAGGGTGATGGTTCACGTAGTGGCCCATCGCCCTGATAGACGGTTTTTCGCCCTTTGACGTTGGAGTCCACGTTCTTTA
400 ATAGTGGA CTCTTGTTCCAAACTGGAACAACACTCAACCCATCTCGGTCTATTCTTTTGATTATAAGGGATTTTGGCCGATTTCGGCCCTATTGGTTAAA
500 AAATGAGCTGATTTAACAAAAATTTAACGGGAATTTAACAAAAATATTAAACGCTTACAATTTCCATTTCGCCATTCAAGCTGCGCAACTGTTGGGAAGGGC
600 GATCGGTGCGGGCCTCTTCGCTATTACGCCAGCTGGCGAAAGGGGGATGTGCTCAAGCGGATTAAGTTGGGTAACGCCAGGGTTTCCCAGTCACGACG
700 TTGTAAACGACGCGCCAGTGAATTGTAATACGACTCACTATAGGGCGAATTGGGTACCGGCCCCCTCGAGTTCGACGGTATCGATAAGCTTGATATC
800 GAATTCTGCAGCCCCGGGGATCCCATGCGTCAATTTTACGCAGACTATCTTTCTAGGGTTAATCTAGCTGCATCAGGATCATATCGTCGGGTCTTTTTT
900 _____ RIGHT TERMINAL REPEAT _____>
CCGGCTCAGTCA TCGCCCAAGCTGGCGCTATCTGGGCA TCGGGGAGGAAGCCCCGTGCCCTTTCCCGCGAGGTTGAAGCGGCATGGAAAGAGTTTGCC
1000 GAGGATGACTGCTGCTGCATTGACGTTGAGCGAAAACGCACGTTTACCATGATGATTTCGGGAAGGTGTGGCCATGCACGCCTTTAACGGTGAAC TGTTCG
1100 TTCAGGCCACCTGGGATACCAGTTCGTGCGGGCTTTTCCGGACACAGTTCGGGATGGTCAGCCCGAAGCGCATCAGCAACCCGAAACAATACCGCGGACAG

FIG. 20(B)

1200 CCGGAACTGCCCGTGTGCAGATTAAATGACAGCGGTGCGGCGCTGGGATATTACGTCAGCGAGGACGGGTATCCTGGCTGGATGCCGCAGAAATGG
1300 ACATGGATACCCCGTGAGTTACCCGGGGCTCGTTCATTACGTTTTTGAACCCGTGGAGGACGGGCAGACTCGCGGTGCAAAATGTGTTTTACAGCGTGA
1400 TGGAGCAGATGAAGATGCTCGACACGCTGCAGAAACAGCAGCTAGATTAAACCCTAGAAAGATAATCATATTGTGACGTACGTTAAAGATAATCATCGCGTA
1500 _____
LEFT TERMINAL REPEAT
AAATTGACGCATGGGATCCACTAGTGTCCCAACAATGGTTAATTCGAGCTCGCCCCGGGATCTAATTCAATTAGAGACTAATTCAATTAGAGCTAATTCA

3XP3-EYFP MARKER
1600 ATTAGGATCCAAGCTTATCGATTTCGAACCCCTCGACCCGCGGAGTATAAATAGAGCGGCTTCGTCTACGGAGCGACAATTCAATTCAAAACAAGCAAAAGTG

3XP3-EYFP MARKER
1700 AACACGTCGCTAAGCGAAAGCTAAGCAATAAACAAGCGCAGCTGAACAAGCTAAACAATCGGGGTACCGCTAGAGTCGACGGTACGATCCACCGGTCGC

3XP3-EYFP MARKER
1800 CACCATGGTGAGCAAGGGCGAGGAGCTGTTCAACCGGGTGGTGCCCATCTTGGTCGAGCTGGACGGCGGACGTAAACGGCCACAAGTTCAGCGTGTCCGGC

3XP3-EYFP MARKER
1900 GAGGCGGAGGGCGATGCCACCTACGGCAAGCTGACCCCTGAAGTTTCATCTGCACCACCGGCAAGCTGCCCGTGCCCTGGCCCCACCCCTCGTGACCACCTTCG

3XP3-EYFP MARKER
2000 GCTACGGCCTGCAGTGCTTCGCCCGCTACCCCGACCACATGAAGCAGCAGCAGCTTCTTCAAGTCCGCCATGCCCGAAGGCTACGTCCAGGAGCGCACCAT

3XP3-EYFP MARKER
2100 CTTCTTCAAGGACGACGGCAACTACAAGACCCGCGGAGGTGAAGTTCGAGGGCGACACCCTGGTGAACCGCATCGAGCTGAAGGGCATCGACTTCAAG

3XP3-EYFP MARKER

FIG. 20(B) CONT.

2200 GAGGACGGCAACATCCTGGGGCAAGCTGGAGTAACTAACAGCCACAACGTCCTATATCATGGCCGACAAGCAGAAGACGGCATCAAGGTGAACT
 3XP3-EYFP MARKER >
 2300 TCAAGATCCGGCCACAACATCGAGGACGGCAGCGTGCAGCTCGCGGACCACTACCAGCAGACAACACCCCATCGGCGACGGCCCCGTGCTGCTGCCCCGACAA
 3XP3-EYFP MARKER >
 2400 CCACTACCTGAGCTACCACTCCGCCCTGAGCAAGACCCCAACGAGAAGCGGATCACATGGTCTGCTGGAGTTCTGTGACCGCCGCGGGATCACTCTC
 3XP3-EYFP MARKER >
 2500 GGCAATGGACGAGCTGTACAAGTAAAGCGGCGGACTCTAGATCATATAATCAGCCATACCCACATTTGTAGAGGTTTACTTGCTTTAAAAACCTCCACACA
 3XP3-EYFP MARKER >
 2600 CCTCCCCCTGAACCTGAAACATATAAATGAATGCAATTGTTGTTGTTAACTGTTTATTGCAGCTTATAATGGTTACAAATAAAGCAATAGCATCACAAAT
 3XP3-EYFP MARKER >
 2700 TTCACAAATAAAGCATTTTTTCACTGCATTCTAGTTGTGGTTGTCCAAACTCATCAATGTATCTTAAAGCTTATCGATACGGTACGGCGCGCCTAGG
 3XP3-EYFP MARKER >
 2800 CCGGCCGATCACTAGTTCTAGAGCGGCGCCACCGGGTGGAGCTCCAGCTTTTGTTCCTTTAGTGAGGGTTAATTTCGAGCTTGGCGTAATCATGGTC
 >
 2900 ATAGCTGTTTCCTGTGAAATTGTTATCCGCTCACAAATCCACACAACATACGAGCCGGAAGCATAAAGTGTAAGCCTGGGTGCCCTAATGAGTGAGC
 3000 TAACTCACATTAATTGCGTTGCGCTCACTGCCCCGCTTCCAGTCGGGAACCTGTCGTGCCAGCTGCATTAATGAATCGGCCAACCGCGGGGAGAGCGC

FIG. 20(B) CONT.

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|
3100 GTTTGCGTATTGGGCGCTCTTCCGCTTCCTCGCTCACTGACTCGCTCGGCTCGTTCGGCTGCGGCGAGCGGTATCAGCTCACTCAAAGGCGGTAAT
3200 ACGGTTATCCACAGAAATCAGGGGATAACGCAGGAAGAACAATGTAGCAAAAGGCCAGAACCGTAAAAAGGCCGGTTGCTGGCGTTT
3300 TTCCATAGGCTCCGCCCCCTGACGAGGATCACAAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAAGATACCAGGCGTTTCCCC
3400 CTGGAAGCTCCCTCGTGGCTCTCCTGTTCGACCCCTGCCGCTTACCGGATACCTGTCCGCTTCTCTCCCTTCGGGAAGCGTGGCGCTTCTCATAGCTC
3500 ACGCTGATAGGTATCTCAGTTCGGTGTAGGTCGTTCCGCTCCAAGCTGGGCTGTGTGCACGAACCCCCCGTTCAGCCCCGACCGCTGCGCCTTATCCGGTAAC
3600 TATCGTCTTGAGTCCAAACCCGGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGGCGGTGCTACAG
3700 AGTTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGACAGTATTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGGAAAAAAGAGTTGGTAG
3800 CTCTTGATCCGGCAAAACAACCCGCTGGTAGCGGTGTTTTTTTGTTCGAAGCAGCAGATTACGCGCAGAAAAAAAGGATCTCAAGAAGATCCTTTTG
3900 ATCTTTTCTACGGGTCTGACGCTCAGTGGAAACGAAAACTCACGTTAAGGATTTTGGTCATGAGATTATCAAAAAGGATCTTCACCTAGATCCTTTTAA
4000 ATTAAAAATGAAGTTTAAATCAATCTAAAGTATATATAGTAAACTTGGTCTGACAGTTACCAATGCTTAATCAGTGAGGCACCTATCTCAGCGATCTG
4100 TCTATTTCGTTCCATAGTTGCCTGACTCCCCCGTGTAGATAACTACGATACGGGAGGCTTACCATCTGGCCCCCAGTGCTGCAATGATACCGCGA
      AMPICILLIN RESISTANCE
      AMPICILLIN RESISTANCE
>

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FIG. 20(B) CONT.

4200
 GACCCACGCTCACCGGCTCCAGATTTATCAGCAATAAACAGCCAGCCGGAAGGCCGAGCGCAGAAAGTGGTCTGCAACTTTATCCGGCCTCCATCCAGT

 AMPCILLIN RESISTANCE >
 4300
 CTATTAAATTGTTGCCGGGAAGCTAGAGTAAGTAGTTCGCCAGTTAATAAGTTTGGCGAACGTTGTTGCCATTGCTACAGGCATCGTGGTGTACGGCTCGTC

 AMPCILLIN RESISTANCE >
 4400
 GTTTGGTATGGCTTCATTTCAGCTCCGGTTCCTCAACGATCAAGCGAGTTACATGATCCCCCATGTTGTGCAAAAAGCGGTAGCTCCTTCGGTCCCTCCG

 AMPCILLIN RESISTANCE >
 4500
 ATCGTTGTCAGAAAGTAAGTTGGCCGCAGTGTATCACTCATGGTTATGGCAGCACTGCATAATTCTTACTGTCTATGCCATCCGTAAGATGCTTTTCIG

 AMPCILLIN RESISTANCE >
 4600
 TGA CTGGTGAGTACTCAACCAAGTCATTCTGAGAAATAGTGTATGCGCGCACCGAGTTGCTCTTGTGCCCCGGGTCAATACGGGATAATACCGCGCCACATAG

 AMPCILLIN RESISTANCE >
 4700
 CAGAACTTTAAAAGTGCTCATCATTTGGAAAACGTTCTTCGGGGCGAAAACCTCTCAAGGATCTTACCGCTGTTGAGATCCAGTTCGATGTAACCCACTCGT

 AMPCILLIN RESISTANCE >
 4800
 GCACCCCACTGATCTTCAGCATCTTTTACTTTCACCAGCGTTTCTGGGTGAGCAAAAACAGGAAGGCAAAATGCCGCAAAAAGGGAATAAGGGCGCACAC

 AMPCILLIN RESISTANCE >
 4900
 GGAAATGTTGAATACTACTCTTCCCTTTTCAATATTATTGAAGCATTTATCAGGGTTATTGTCTCATGAGCGGATACATATTTGAATGTATTAGAA

 AMPCILLIN RESISTANCE >
 AAATAAACAAATAGGGGTTCCGGCGCACATTTCCCCGAAAAGTGC-- (SEQ ID NO:56) --

FIG. 20(B) CONT.

pBSII-Act5c-orf

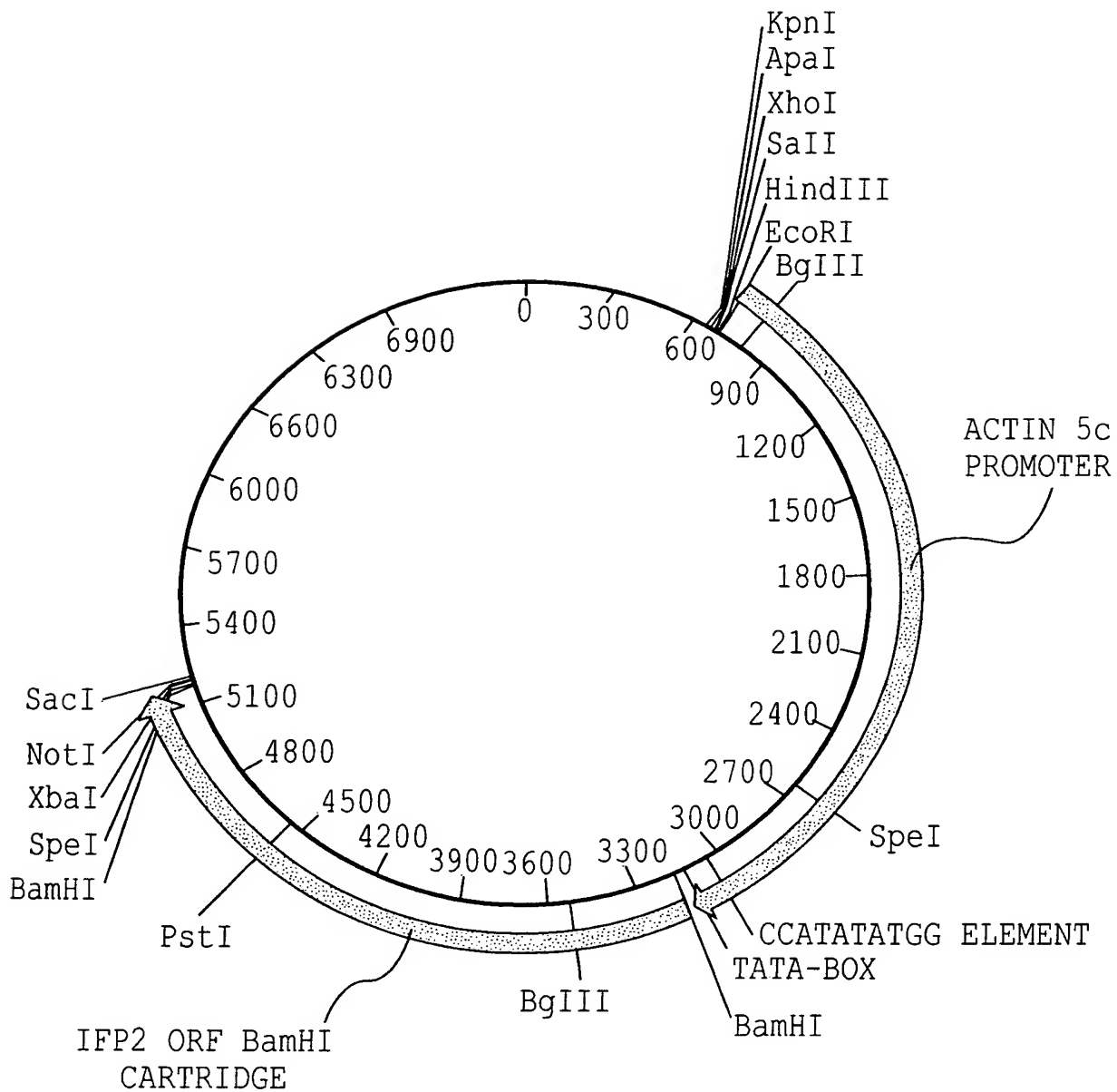


FIG. 21A

pBSII-Act5c-orf
Sequence Range: 1 to 7411

100
CTAAATTGTAAGCGTTAATATTTTGTAAATTCGCGTTAAATTTTGTAAATCAGCTCATTTTAAACCAATAGGCCGAAATCGGCAGAAATCCCTTAT

200
AAATCAAAGAATAGACCGAGATAGGGTTGAGTGTGTTCCAGTTTGGACAAGAGTCCACTATTAAAGAACGTGGACTCCAACGTCAAAGGGCGGAAAAA

300
CCGTCTATCAGGGCGATGGCCCACTACGTGAACCATCACCCCTAATCAAGTTTTTGGGGTCGAGGTGCCGTAAAGCACTAAATCGGAACCCCTAAAGGGAG

400
CCCCCGATTAGAGCTTGACGGGGAAGCCGGCGAACGTGGCGAGAAAGGAAGGAAAGGAGCGGGCGCTAGGGCGCTGGCAAGTGTAGCG

500
GTCACGCTGCGCGTAACCAACACCCGCCGCGCTTAATGCGCGCGCTACAGGGCGCGTCCCATTGCGCCATTGAGGCTGCGCAACTGTTGGGAAGGGCGAT

600
CGGTGCGGGCCCTCTTCGCTATTACGCCAGCTGGCGAAAGGGGATGTGCTGCAAGCGGATTAAGTTGGTAACGCCAGGGTTTCCCAGTCACGACGTTG

700
TAAACGACGGCCAGTGAGCGCGGTAATACGACTCACTATAGGCGGAATTGGTACCGGGCCCCCTCGAGGTCGACGGTATCGATAAGCTTGATATC

800
GAATTCTAAAAAATCATGAATGGCATCAACTCTGAATCAAATCTTTCAGATGCACCTACTTCTCATTTCCACTGTACATCATTTTCCAGATCTCG
ACTIN 5C PROMOTER

900
CTGCCTGTTATGTGGCCCAACCAAGACACGTTTATGGCCATTAAAGCTGGCTGATCGTCGCCAACACCAAAATACATATCAATATGTACATTCTGAG
ACTIN 5C PROMOTER

1000
AAAGACCGATCAAAGAAGCGTCTTCGGCGGAGTAGGAGAAATCGGGAGGAGAAAGGAGACGAGCTGATCTAGTATCTCTCCACAATCCAATGCCAACTGA
ACTIN 5C PROMOTER

FIG. 21(B)

1100 CCAACTGGCCATATTCGGAGCAATTGAAGCCAATTTCCATCGCCTGGCGATCGCTCCATTCTTGGCTATATGTTTTTCACCGTTCCCGGGGCCATTTTC
 ACTIN 5C PROMOTER >
 1200 AAAGACTCGTCGGTAAGATAAGATTGTGTCACTCGCTGTCCTCTTCAATTGTCGAAGAATGCTGAGGAATTCGCGATGACGTGCGGAGTATTTTGAA
 ACTIN 5C PROMOTER >
 1300 GAATGAGATAAATTTGTATTTATACGAAATCAGTTAGTGAATTTTCTACAAAACATGTTATCTATAGATAAATTTGTGCAAAATATGTTGACTATG
 ACTIN 5C PROMOTER >
 1400 ACAAGATTGTATGTATATACCTTTAATGTATTCTCATTTTCTTATGTATTTATAATGGCAATGATGATACTGATGATATTTTAAGATGATGCCAGACCA
 ACTIN 5C PROMOTER >
 1500 CAGGCTGATTTCTGCGTCTTTTGCCGAACGCAGTGCAATGTGCGGTGTTGTTTTTGGAAATAGTTTCAATTTTCGGACTGTCGCTTTGATTTCACTTC
 ACTIN 5C PROMOTER >
 1600 TTGGCTTATTCAAAAAGCAAAGTAAAGCCAAAAAAGCGAGATGGCAATACCAATGCGGCAAAACGGTAGTGGAAGGAGGGTGCGGGGCGCAGCGGAAG
 ACTIN 5C PROMOTER >
 1700 GAAGGGTGGGGGGGGCGTGGCGGGTCTGTGGCTGGGCGGACGTACCGACGTTGGAGCCACTCCTTTGACCATGTGTGCGTGTGTATTATTCGTG
 ACTIN 5C PROMOTER >
 1800 TCTCGCCACTCGCCGGTTGTTTTTTTCTTTTATCTCGCTCTCTCTAGCGCCATCTCGTACGATGCTCAACGCCGCAATGTTGCCGTGTCCTTTATGCG
 ACTIN 5C PROMOTER >
 1900 GTCATTTTGGCTCGAAATAGGCAATTATTTAAACAAAGATTAGTCAACGAAACGCTAAATAAATAAGTCTACAATATGGTTACTTATTGCCCATGTGTG
 ACTIN 5C PROMOTER >

FIG. 21(B) CONT.

2000 TGCAGCCCAACGATAGCAACAAAGCAACACAGTGGCTTCCCTCTTTCACCTTTTGTGCAAGCGGTGCGAGCAAGACGGCAGCCGCGCAACG
 ACTIN 5C PROMOTER >
 2100 CAATTACGCTGACAAAGAGCAGACGAAGTTTGGCCGAAAAACATCAAGGCGCTGATACGAATGCATTTGCAATAACAATTGCGATATTAAATATTGTT
 ACTIN 5C PROMOTER >
 2200 TATGAAGCTGTTGACTTCAAAACACACAAAAAAAATAAAACAAATTATTTGAAAGAGAAATTAGGAATCGGACAGCTTATCGTTACGGGGCTAACAGC
 ACTIN 5C PROMOTER >
 2300 ACACCGAGACGAAATAGCTTACCTGACGTCACAGCCTCTGGAAGAACTGCCGCCAAGCAGACGATGCAGAGGACGACACATAGAGTAGCGGAGTAGGCCA
 ACTIN 5C PROMOTER >
 2400 GCGTAGTACGATGTGCTGTGTGAGGCGTCTCTCTCTTCGTCTCCTGTTTGGCGAAACGCAATAGACTGCACTGAGAAAAATCGATTACCTATTTTAA
 ACTIN 5C PROMOTER >
 2500 TGAATGAATATTGCACATATTACTATTCAAAACTATTAAAGATAGCAATCACATTCAATAGCCAAATACTATACCCTGAGCGATGCAACGAAATGATCA
 ACTIN 5C PROMOTER >
 2600 ATTTGAGCAAAAAATGCTGCATATTTAGGACGGCATCATTAAGAAATGCTTCTTGCTGTGTACTTTTCTCTCGTCTGGCAGCTGTTTCGCCGTTATTGTT
 ACTIN 5C PROMOTER >
 2700 AAAACCGGCTTAAGTAGGTGTGTTTCTACGACTAGTGATGCCCTACTAGAAAGATGTGTGTGTCACAAATGTCCCTGAATAACCAATTTGAAGTGCAG
 ACTIN 5C PROMOTER >
 2800 ATAGCAGTAAACGTAAGCTAATGAATATTATTAACTGTAATGTTTAAATATCGCTGGACATTACTAATAAACCCACTATAAACACATGTACATATGT
 ACTIN 5C PROMOTER >

FIG. 21(B) CONT.

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2900 ATGTTTGGCATACAATGAGTAGTTGGGGA AAAATGTGTAAAGCACCGTGACCATCACAGCATAAAGATAACCAGCTGAAGTATCGAATATGAGTAAC
      ACTIN 5C PROMOTER
3000 CCCCAAATTGAATCACATGCCGCAACTGATAGCACCCCATGGAAGTACACTCTTTCATGGCGATATACAAGACACACACAGCACGAACCCAGTTGCGGA
      ACTIN 5C PROMOTER
      >CCATATATGG element
3100 GGA AATTCTCCGTAAATGAA AACC CAATCGGCGAACAATT CATACCCATATATGGTAAAGTTTGAACGCGACTTGAGAGCGGAGAGCATTCGCGGCTGA
      ACTIN 5C PROMOTER
      >TATA-box
3200 TAAGGTTT TAGCGCTAAGCGGGCTTTATAAAACGGGCTGCGGGACCAGTTTTCATATCCGATCCCTATATAATAAAATGGGTAGTCTTTAGACGATGAGC
      ACTIN 5C PROMOTER
      >
3300 ATATCCCTCTGCTCTTCTGCAAGCGATGACGAGCTTGTGGTGAGGATTCTGACAGTGAAATATCAGATCACGTAAGTGAAGATGACGTC CAGAGCGGA
      IFP2 ORF BAMHI CARTRIDGE
3400 TACAGAAGAAGCGTTTATAGATGAGGTACATGAAGTGCAGCCCAACGTC AAGCGGTAGTGAAATATTAGACGAACA AAAATGTTATTGAACAAC CAGGTTCT
      IFP2 ORF BAMHI CARTRIDGE
3500 TCATTGGCTTCTAACAGAA TCTTGACCTTGCCACAGAGGACTATTAGAGGTAAGAAATAAACATTGTTGGTCAACTTCAAAGTCCACGAGGCGTAGCCGAG
      IFP2 ORF BAMHI CARTRIDGE

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FIG. 21(B) CONT.

3600 TCTCTGCACTGAACATTGTCAGATCTCAAAGAGGTCCTCCGCGTATGTCCCGCAATATATATGACCCACTTTTATGCTTCAAACACTATTTTACTGATGA
 IFP2 ORF BAMHI CARTRIDGE >
 3700 GATAATTTCGGAAATTGTAAATGGACAAATGCTGAGATATCATTTGAAACGTCGGGAATCTATGACAGGTGCTACATTTTCGTGACACGAATGAAGATGAA
 IFP2 ORF BAMHI CARTRIDGE >
 3800 ATCTATGCTTCTTTGGTATTCTGGTAATGACAGCAGTGAGAAAAGATAACCACATGTCCACAGATGACCTCTTTGATCGATCTTTGTCAATGGTGTACG
 IFP2 ORF BAMHI CARTRIDGE >
 3900 TCTCTGFAATGAGTCGTGATCGTTTGTGATTTTGTATACGATGCTTTAGAAATGGATGACAAAAAGTATACGGCCACACTTCGAGAAAAACGATGTATTAC
 IFP2 ORF BAMHI CARTRIDGE >
 4000 TCCTGTTAGAAAAAATATGGGATCTCTTTATCCATCAGTGCATACAAAAATTACACTCCAGGGGCTCATTTGACCATAGATGAACAGTTACTTGGTTTGTAGA
 IFP2 ORF BAMHI CARTRIDGE >
 4100 GGACGGTGTCCGTTTAGGATGTATATCCCAAACAAGCCCAAGTAAGTATGGAATAAAAAATCCTCATGATGTGTGACAGTGGTACGAAAGTATATGATAAAATG
 IFP2 ORF BAMHI CARTRIDGE >
 4200 GAATGCCCTTATTGGGAAGAGGAACACAGACCAACGGAGTACCACCTCGGTGAATACTACGTGAAGGAGTTATCAAAGCCTGTGCACGGTAGTTGTCTGTAA
 IFP2 ORF BAMHI CARTRIDGE >
 4300 TATTACGTGTGACAAATTGGTTCACCTCAATCCCTTTGGCAAAAACTTACTACAAGAACCGTATAAGTTAACCATTTGTGGGAACCGTCCGATCAAAACAAA
 IFP2 ORF BAMHI CARTRIDGE >
 4400 CGCGAGATACCGGAAGTACTGAAAAACAGTCGCTCCAGGCCAGTGGGAACATCGATGTTTGTGTTTACGGACCCCTTACTCTCGTCTCATATAAACCGA
 IFP2 ORF BAMHI CARTRIDGE >

FIG. 21(B) CONT.

4500
 AGCCAGCTAAGATGGTATACTTATTATCATCTTGTGATGAGGATGCTTCTATCAACGAAAGTACCGGTAAACCGCAAAATGGTTATGTATTATAATCAAAC
 IFP2 ORF BAMHI CARTRIDGE >

4600
 TAAAGCGGAGTGACACGCTAGACCAAAATGTGTTCTGTGATGACCTGCCAGTAGGAAGACGAAATAGGTGGCCTATGGCATTTATTGTACGGAATGATAAAC
 IFP2 ORF BAMHI CARTRIDGE >

4700
 ATTGCCCTGCATAAAATTCCTTTTATTATATACAGCCATAAATGTCAGTAGCAAGGGAGAGAAAGGTTCAAAGTCGCAAAAAAATTTATGAGAAACCTTTACATGA
 IFP2 ORF BAMHI CARTRIDGE >

4800
 GCCTGACGTCATCGTTTATGCGTAAGCGTTTAGAAGCTCCTACTTTGAAGAGATATTTGCCGCGATAATATCTCTAATATTTTGGCCAAATGAAGTGCCTGG
 IFP2 ORF BAMHI CARTRIDGE >

4900
 TACATCAGATGACAGTACTGAAGAGCCAGTAATGAAAAAACGTACTTACTGTACTTACTGCCCTCTAAAAATAAGCGAAAGGCAAAATGCATCGTGCAAA
 IFP2 ORF BAMHI CARTRIDGE >

5000
 AAATGCAAAAAAGTTATTTGTGCGAGAGCATAAATATTGATATGTGCCAAAGTTGTTTCTGACTGACTAATAAGTATAATTTGTTTCTATTATGTATAAGTT
 IFP2 ORF BAMHI CARTRIDGE >

5100
 AAGCTAATTACTTATTTTATAATACAACATGACTGTTTTTAAAGTACAAAAATAAGTTTATTTTGTGTAAGAGAGAGAAATGTTTAAAGTTTTTGTACTTTA
 IFP2 ORF BAMHI CARTRIDGE >

5200
 GAAGAAATTTTGAGTTTTTGTTTTTTTTTTAAATAAAATAAACATAAAATAAATTGTTTGTGAATTTGGATCCACTAGTCTAGAGCGGCCGCCACCGC
 IFP2 ORF BAMHI CARTRIDGE >

5300
 GGTGGAGCTCCAGCTTTTGTTCCTTTAGTGAGGGTTAATTGGCGCGCTTGGCGTAATCATGTGCATAGCTGTTTCCCTGTGTGAAATTTGTTATCCGCTCAC

FIG. 21(B) CONT.

5400 AATTCCACACAATACGAGCCGGAAGCATAAAGTGTAAGCCTGGGGTGCCCTAATGAGTGAGCTAACTCACATTAAATTGCGTTGCGCTCACTGCCCGCT
5500 TTCCAGTCGGGAAACCTGTCTGTCCAGCTGCATTAAATGAATCGGCCAACGCGCGGGAGAGCGGTTTGGGTATTGGGCGCTCTTCCGCTTCCCTCGCTCA
5600 CTGACTCGCTCGGCTCGGTCTGGCTGCGCGGAGCGGTATCAGCTCACTCAAAGCGGTAATACGGTTATCCACAGAATCAGGGGATAACGCAGGAAA
5700 GAACATGTAGCAAAAGGCCAGCAAAAGGCCAGGAACCGTAAAGCCGGTTGTCTGGCGTTTTCCTATAGGCTCCGCCCCCCTGACGAGCATCACAAA
5800 AATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAGATACCAGGCGTTTCCCCCTGGAAGCTCCCCTCGTGGGCTCTCCTGTTCGACCC
5900 TGCCGCTTACCGGATACCTGTCCGCCCTTCTCCCTTCGGGAAGCGTGCCGCTTCTCATAGCTCACGCTGTAGGTAATCTCAGTTCGGTGTAGGTCGTTCC
6000 CTCCAAGCTGGGCTGTGTGCACGAACCCCGGTTCAGCCCGACCGCTGCGCCTTATCCGGTAACATACTGTCTTGAGTCCAACCCGGTAAGACACGACTTA
6100 TCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGCGGTGCTACAGAGTTCTTGAAGTGGTGGCCTAACTACGGCTACACTA
6200 GAAGGACAGTATTGGTATCTGGGCTCTGCTGAAGCCAGTTACCTTCGGAAAAAGAGTTGGTAGCTCTTGATCCGGCAACAACCCGCTGGTAGCGG
6300 TGGTTTTTTTGTGTGCAAGCAGCAGATTACGGCGCAAAAAAGGATCTCAAGAAGATCCCTTTGATCTTTTTCTACGGGGTCTGACGCTCAGTGGAAACGAA
6400 AACTCAGGTTAAGGGATTTTGGTCATGAGATTATCAAAAAAGGATCTTCACCTAGATCCCTTTTAAATTAAAAATGAAGTTTAAATCAATCTAAAGTATAT
6500 ATGAGTAAACTTGGTCTGACAGTTACCAATGCCTTAATCAGTGAGGCACCTATCTCAGCGATCTGTCTATTTCTGTTTCATCCATAGTTGCCCTGACTCCCCGT

FIG. 21(B) CONT.

6600 CGTGTAGATAACTACGATACGGGAGGGCTTACCATCTGGCCCCAGTGCTGCAATGATACCGCGAGACCCACGCTCACCGGCTCCAGATTATCAGCAATA
6700 AACCAGCCAGCCGGAAGGGCCGAGCGCAGAAGTGGTCTCTGCAACTTTATCCGCCCTCCATCCAGTCTATTAAATTGTTGCCGGGAAGCTAGAGTAAGTAGTT
6800 CGCCAGTTAATAGTTTGGCAACGTTGTTGCCATTGCTACAGGCATCGTGGTGTCAAGCTCGTCGTTTGGTATGGCTTCATTCAGCTCCGGTTCCTCAACG
6900 ATCAAGGCGAGTTACATGATCCCCCATGTTGTGCAAAAAAAGCGGTTAGCTCCTTCGGTCCTCCGATCGTTGTCAAGAATAAGTTGGCCGCGAGTGTATCA
7000 CTCATGGTTATGGCAGCACTGCATAATTCTCTTACTGTCTATGCCATCCGTAAGATGCTTTTCTGTGACTGGTGAGTACTCAACCAAGTCATTTCTGAGAAT
7100 AGTGATGCGGCGACCGAGTTGCTCTTGGCCCGGCGTCAATACGGGATAATACCGCGCCACATAGCAGAACTTTAAAGTGCTCATCATTTGGAAAACGTTT
7200 TTCGGGGCGAAACTCTCAAGGATCTTACCGCTGTTGAGATCCAGTTCGATGTAAACCCACTCGTGCACCCAACTGATCTTCAGCATCTTTTACTTTCACC
7300 AGCGTTTCTGGTGAGCAAAACAGGAAGGCAAAATGCCGCAAAAAGGGAATAAGGGCGACACGGAAATGTTGAATACTCATACTCTTCCTTTTCAAT
7400 ATTATTGAAGCATTATCAGGGTTATTGTCTCATGAGCGGATACATATTGAAATGATTTAGAAAAATAAACAAATAGGGGTTCCGGCGCACATTTCCCCCG
AAAAGTGCCAC -- (SEQ ID NO:67) --

FIG. 21(B) CONT.

Sequence Range: 1 to 10333

```
100 AAGCTTGGGCTGCAGGTCGACGGATCCAAATTCAACAACAATTTATTATTATGTTTATTATTATAAAAAACAAAACTCAAAATTTCTCTAAAG
200 TAACAAAACCTTTTAAACATTCTCTCTTTTACAAAATAAACTTATTTGTACTTTTAAAAACAGTCATGTTGTATTATAAAATAAGTAATTAGCTTAACCTT
300 ATACATAATAGAAACAAATTATACCTTATTAGTCAGTCAGAAACAACCTTTGGCACATATCAATATTATGCTCTCGACAAATAACTTTTTTGCATTTTTTTC
< _____ PIGYBAC ORF _____
400 ACGATGCATTTGCCCTTATTTTAGAGGGGCAGTAAGTACAGTAAGTACGTTCTTTTTCATTACTGGCTCTTCAGTACTGTGTCATCTGTATCCAGG
< _____ PIGYBAC ORF _____
500 CACTTCATTTGGCAAAATATTAGAGATATTATCGCGCAAAATATCTCTTCAAAGTAGGAGCTTCTAAACGCTTACGCATAAACGATGACGTCAGGCTCATG
< _____ PIGYBAC ORF _____
600 TAAAGGTTTCTCATAAAATTTTGGCGACTTTGAACCTTTTCTCCCTTGCTACTGACATTAAGGCTGTATATAATAAAAGAATTATATGCAGGCAATGTTTA
< _____ PIGYBAC ORF _____
700 TCATTCCGTACAATAATGCCATAGGCCACCTATTTCGTCTTCCTACTGCAGGTCATCACAGAACACATTTGGTCTAGCGTGTCCACTCCGCCCTTAGTTTG
< _____ PIGYBAC ORF _____
800 ATTATAATACATAACCATTTCGGGTTTACCGGTACTTTCGTTGATAGAAGCATCCTCATCACAAAGATGATAATAAGTATACCATCTTAGCTGGCTTCGGT
< _____ PIGYBAC ORF _____
900 TTATATGAGACGAGAGTAAGGGTCCGTCAAACAAACATCGATGTTCCTCCACTGGCCTGGAGCGACTGTTTTTCAGTACTTCCGGTATCTCGCGTTTGT
< _____ PIGYBAC ORF _____
```

FIG. 22

1000
TTGATCGCACGGTTCCACACAATGGTTAACTTATACGGTTCTTGTAGTAAGTTTTTTGCCAAAGGATTGAGGTGAACCAATTGTCACACGTAATATTACG
< PIGGYBAC ORF

1100
ACAACTACCGTGCACAGGCTTTGATAACTCCTTCACGTAGTATTACCCGAGTGGTACTCCGTTGGTCTGTGTTCCCTCTTCCCAATAAAGGCATTCCATT
< PIGGYBAC ORF

1200
ATCATATACTTCGTACCACTGTCACACATCATGAGGATTTTATTCCATACTTACTTGGCTTGGTTGGGATATACATCCTAAACGGACACCGTCCTCTAA
< PIGGYBAC ORF

1300
AACCAAGTAACTGTTCACTCTATGGTCAATGAGCCCTGGAGTGTAAATTTTGTATGCACTGATGGATAAAGAGATCCCATATTTTCTAACAGGAGTAAA
< PIGGYBAC ORF

1400
TACATCGTTTTCTCGAAGTGTGGGCCGTATACTTTTGTCACTCCATTCTTAAGACATCGTATCAAAAATCAAAACGATCACGACTCATTAACAGAGACGTAC
< PIGGYBAC ORF

1500
ACCATTGACAAAGATCGATCAAGAGGTCATCTGTGGACATGTGGTTATCTTTCTCACTGCTGTCAATACCAGAAATCCAAAGCATAGATTTCAT
< PIGGYBAC ORF

1600
CTTCATTCTGTGCAGAAATGTAGCACCTGTCTATAGATTCCCGACGTTTCAATGATATCTCAGCAATTTGTCCATTTTACAATTTCCGAAATTATCTCATC
< PIGGYBAC ORF

1700
AGTAAAAAATAGTTTGAAGCATAAAGTGGGTCAATATATTGCGGCACATACCGGTCGGACCTCTTTGAGATCTGACAAATGTTCAGTGCAGAGACTCGG
< PIGGYBAC ORF

1800
CTACGCCCTCGTGGACTTTGAAGTTGACCAACAATGTTTATTCTTACCTCTAATAGTCCCTCTGTGGCAAGGTCAAGATTCTGTAGAACCAATGAAGAAC
< PIGGYBAC ORF

FIG. 22 CONT.

1900 CTGGTTGTTCAATAACATTTTGTTCGTCATAATTTTCACTACCGCTTGACGTTGGCTGCACCTTCAATGTACCTCATCTATAAACGCTTCTTCTGTATCGCT
 < PIGYBAC ORF

2000 CTGGACGTCATCTTCACTTACGTGATCTGATATTTTCACTGTCAGAAATCCTCACCAACAAGCTCGTCAATCGCTTTGCAGAAAGACGAGAGGATATGCTCA
 < PIGYBAC ORF

2100 TCGTCTAAAGAACTACCCATTTTATATATAGGATCCCCGACACCAGACCAACTGGTAATGGTAGCGACCGGCGCTCAGCTGGAAATTAGGCCCTTCTAGAC
 < PIGYBAC ORF

2200 CGCGGCCGCAGATCTGTTAACGAATTCCCAATTCCCTATTTCAGAGTTCTCTTCTTGATTCAATAATTACTTCTTGGCAGATTTTCAGTAGTTCAGTTGA
 < HSP 70 PROMOTER

2300 TTTACTTGGTTGCTGGTTACTTTTAAATTGATTCACTTTAACTTGCACCTTACTGCAGATTGTTTAGCTTGTTCAGCTGCGCTTGTTTATTGCTTAGCTT
 < HSP 70 PROMOTER

2400 TCGCTTAGCGACGTGTTCACTTTTGCTTGTTTGAATTGTAATTGTCGCTCCGTAGACGAAGCGCTCTATTATATACTCCGGCGCTCTTTTCGCGAACATTCGA
 < HSP 70 PROMOTER

2500 GGCGCGCTCTCTCGAACCAACGAGAGCAGTATGCCGTTTACTGTGTACAGAGTGAGAGAGCATTAGTGCAGAGGGGAGACCCAAAAAGAAAGAGAGA
 < HSP 70 PROMOTER

2600 ATAAACGAATAACGGCCAGAGAAATTTCTCGAGTTTCTTCTGCCAAACAATGACCTACCACAATAACCAGTTTGTGTTGGGATTCTAGGGGGATCGGGG
 < HSP 70 PROMOTER

2700 ATCAATTCTAGTATGTAGTTAATAAAACCCTTTTGGAGAAATGTAGATTTAAAAAACATAATTTTTTTTATTTTTTACTGCACCTGGATATCA
 <

FIG. 22 CONT.

2800 TTGAACCTTATCTGATCAGTTTTAAATTTACTTCGATCCAAGGTATTGAAGTACCAGGTTCTTTTCGATTACCTCTCACTCAAAATGACATTCCACTCAA
2900 AGTCAGCGCTGTTTGCCCTCCTTCTCTGTCCACAGAAATATCGCCGTCTCTTTCCGCCGTCCGTCCGCTATCTCTTTCCGCCACCGTTTGTAGCGTTACCTA
3000 GCGTCAATGTCCGCCCTTCAGTTGCACCTTTGTACGGGTTTCGTGACGAAGCTCCAAGCGGTTTACGCCATCAATTAAACACAAAGTCTGTGCCAAAAC
3100 CCTCTCGCTTCTTATTTTGTGTTTGTGAGTGATTGGGGTGGTGATTGGTTTTGGGTGGTAAGCAGGGGAAAGTGTGAAAAATCCCGGCAATGGGC
3200 CAAGAGGATCAGGAGCTATTAATTCGGGAGGCAGCAACACCCCATCTGCCGAGCATCTGAACAATGTGAGTAGTACATGTGCATACATCTTAAGTTAC
3300 TTGATCTATAGGAAGTGGATTGCAACATCAAAATTGTCTGGCGCGTGAGAACTGCGACCCACAAAAATCCCAACCGCAATCGCACAAAAATAGTGAC
3400 ACGAAACAGATTATTCTGGTAGCTGTGCTCGCTATATAAGACAATTTTAAAGATCATATCATGATCAAGACATCTAAAGGCATTTCATTTTCGACTACATT
3500 CTTTTTTACAAAAAATATAACAACCAGATATTTTAAGCTGATCCTAGATGCACAAAAATAAATAAAGTATAAACCTACTTCGTAGGATACTTCGTTTT
3600 GTTCGGGGTTAGATGAGCATAACGCTTGTAGTTGATATTTGAGATCCCCATTCATTGCAGGGTGACAGCGGAGCGGCTTCGCAGAGCTGCATTAAACCAGG
3700 GCTTCGGGCAGGCCAAAACTACGGCACGCTCCTGCCACCCAGTCCGCCGGAGGACTCCGGTTCAGGGAGCGGCCAACTAGCCGAGAACCTCACCTATGC
3800 CTGGCACAATATGGACATCTTTGGGGCGGTCAATCAGCCGGGCTCCGGATGGCGGCAGCTGGTCAACCCGGACACCGCGGACTATTCTGCAACGAGCGGAC
3900 ATACCGGGCCCAGGAAACATTTGCTCAAGAACGGTGAGTTTCTATTTCGCAGTCGGCTGATCTGTGTGAAATCTTAATAAAGGGTCCAATTACCAATTG

FIG. 22 CONT.

4000
 AAACTCAGTTTGGGGCGTGGCCCTATCCGGGCGGAACCTTTTGGCCGTGATGGGCAGTTCGGTGCCGGAAGACGACCCTGCTGAATGCCCTTGCCCTTTCGA
 4100
 TCGCCGCAGGGCATCCAAGTATCGCCATCCGGGATGCGACTGCTCAATGGCCAACCTGTGGACGCCAAGGAGATGCAGGCCAGGTGGCCCTATGTCCAGC
 4200
 AGGATGACCTCTTTATCGGCTCCCTAACGGCCAGGGAACACCTGATTTTCCAGGCCATGGTGCGGATGCCACGACATCTGACCTATCGGCAGCGAGTGGC
 4300
 CCGCGTGGATCAGGTGATCCAGGAGCTTTCGCTCAGCAATGTCAGCACACGATCATCGGTGTGCCCCGGCAGGGTGAAAGGTCTGTCCGGCGGAGAAAGG
 4400
 AAGCGTCTGGCATTTCGCCTCCGAGGCACTAACCGATCCGCCGCTTCTGATCTCGGATGAGCCCCACCTCCGGACTGGACTCATTTACCGCCCCACAGCGTCG
 4500
 TCCAGGTGCTGAAGAAGCTGTCCGAGAAGGGCAAGACCGTCATCCTGACCATTCATCAGCCGCTCTCCGAGCTGTTTGGAGCTCTTTGACAAGATCCCTCT
 4600
 GATGGCCGAGGGCAGGGTAGCTTCTTGGGCACTCCACGGCAAGCCGTCGACTCTTTTCCTAGTGAGTTCGATGTGTTTATTAAAGGGTATCTAGCATT
 4700
 CATTACATCTCAACTCCCTATCCAGCGTGGGTGCCAGTGCTCTACCAACTACAATCCGGCGGACTTTTACGTACAGGTGTGGCCGTTGTGCCCGGACGG
 4800
 GAGATCGAGTCCCGTGATCGGATCGCCAAGATATCCGACAATTTTGCTATTAGCAAAGTAGCCCGGATATGGAGCAGTGTGTGCCACCACCAAAATTTGG
 4900
 AGAAGCCACTGGAGCAGCCGGAGAAATGGGTACACCTACAAGGCCACCTGGTTCAATGCAGTTCGGGGCGTCTGTGGCGATCCTGGCTGTCCGTGCTCAA
 5000
 GGAACCACTCTCGTAAAGTCCGACTTATTTCAGACAACGGTGAGTGGTCCAGTGGAAACAAATGATATAACCGCTTACAATTCCTTGGAAACAAATTCGC
 5100
 TAGATTTTAGTTAGAATTGCCTGATTCCACACCCCTCTTAGTTTTTTTCAATGAGATGTATAGTTTATAGTTTTTCAGAAAAATAAATAATTTTCATTAA

FIG. 22 CONT.

5200 CTCCGGAACATGTTGAAGATATGAATATTAATGAGATGCGAGTAACATTTTAATTTCAGATGGTTGCCATCTTGATTGGCCCTCATCTCTTTTGGGCCAAC
5300 AACTCAGCAAGTGGGCGTGATGAATATCAACGGAGCCATCTTCCTCTCCTGACCAACATGACCTTCAAAACGCTCTTGCCACGATAAATGTAAGTCT
5400 TGTTTAGAATACATTTGCATATTAATAATTACTAACTTCTAATGAATCGATTAGGTGTTACCTCAGAGCTGCCAGTTTTTATGAGGGAGGC
5500 CCGAAGTCGACTTTATCGCTGTGACACATACTTTCTGGCAAAACGATTGCCGAATTACCGCTTTTCTCACAGTGCCCAATGTGTCAACGTCCCTTCGGGCAATTGCC
5600 TATCCGATGATCGGACTGCGGGCCGGAGTGCTGCACCTCTTCAACTGCCCTGGCGCTGGTCACCTCTGGTGGCCAAATGTGTCAACGTCCCTTCGGATATCTAA
5700 TATCCTGGCCAGCTCCTCGACCTCGATGGCGCTGTCTGTGGTCCGCCGGTTATCATACCAATTCCTGCTCTTTGGCGGCTTCTTCTTGAACCTCGGGGCTC
5800 GGTGCCAGTATACCTCAAATGGTTGTCGTACCTCTCATGGTTCGGTTACGCCAACGAGGGTCTGCTGATTAAACCAATGGGCGGACGTGGAGCCGGCGGAA
5900 ATTAGCTGCACATCGTCGAACACCACGTGCCCCAGTTCGGGCAAGGTCACTCTGGAGACGCTTAACTTCTCCGCCCGCGATCTGCCGCTGGACTACGTGG
6000 GTCTGGCCATTCTCATCGTGAGCTTCCGGGTGCTCGCATATCTGGCTCTAAGACTTCGGGCCCGACGCAAGGAGTAGCCGACATATATCCGAAATAACTG
6100 CTTGTTTTTTTTTACCATTATTACCATCGTGTTTACTGTTTTATTGCCCCCTCAAAGCTAATGTAATTATATTGTGCCAATAAAACAAGATATGA
6200 CCTATAGAATACAAGTATTTCCCTTCGAACATCCCCACAAGTAGACTTTGGATTGTCTTCTAACCAAAAGACTTACACACCTGCATACCTTACATCAA
6300 AAACTCGTTTATCGCTACATAAAACACCGGGATATATTTTTTATATACATACTTTTCAAATCGCGGCCCTCTTCAATAATTACCTCCACCACACCCACGT

FIG. 22 CONT.

6400
TTCGTAAGTTGCTCTTTTCGCTGTCTCCACCCGCTCTCCGCAACACATTCACCTTTTGTTCGACGACCTTGGAGCGACTGTCGTTAGTTCGCGCGGATTTCG
6500
GTTCCGCTCAAATGGTTCCGAGTGGTTCATTTTCGCTCAATAGAAATAGTAATAAATATTGTATGTACAATTTATTGTCTCCAATATATTGTATATAT
6600
TTCCTTCACAGCTATATTTATTCTAAATTAATATATATGACTTTTAAAGGTAATTTTTTGTGACCTGTTCCGAGTATAGCGTTACAATTTGAACCTGAAA
6700
GTGACATCCAGTGTGTTGTTCCCTGTGTAGATGCATCTCAAAAAAATGGTGGGCATAATAGTGTGTTTATATATATCAAAAAATAACAACACTATAATAATAA
6800
GAATACATTTAAATTTAGAAAATGCTTGGATTTCACTGGAAC TAGAATTAATTCGGCTGCTGCTCTAAACGACGCAATTCGTACTCCAAAAGTACGAATTTT
6900
TTCCTCAAGCTCTTATTTTCAATTAACAATGAACAGGACCTAACGCACAGTCACGTTATTGTTTACATAAAATGATTTTTTTTACTATTCAAAACTTACTC
7000
TGTTTGTGTACTCCCACTGGTATAGCCTTCTTTTATCTTTTCTGTTTCAGGCTCTATCACTTTACTAGGTACGGCACTCTGCGTTGAGTCGCCCTCCTTTTA
7100
AATGCTGACCTTTTGCAGGTGCAGCCTTCCCACTGCCAATCTTTAAAGTGGGTATCACAAATTTGGGAGTTTTCACCAAGGCTGCACCCCAAGGCTCTGCT
7200
CCCACAAATTTCTCTTAATAGCACACTTCGGGCACGTGAATTAATTTTACTCCAGTCACAGCTTTGCAGCAAAATTTGCAATATTTTCATTTTTTTTATTTC
7300
CACGTAAGGTTAATGTTTTCAAAAAAAATTCGTCCGCACACACCTTTCCTCTCAACAAGCAACGTCGACTGAATTTTAAGTGTATACTTCGGTAAGC
7400
TTCGGCTATCGACGGGACCACCTTATGTTATTTTCATCATGGGCCAGACCCACGTAAGTCCAGCGGAGATTCGGCGCGGAGAGTTAAGCGTCTCCAGGAT
7500
GACCTTGCCCGAACTGGGGCACGTGGTGTTCGACGATGTGCAGCTAATTTGCCCCGGCTCCACGTCCGCCCATTTGGTTAATCAGCAGACCCCTCGTTGGCG

FIG. 22 CONT.

7600 TAACGGAAACCATGAGAGGTACGACAACCATTTGAGGTATACTGGCACCGAGCCCGAGTTC AAGAAGAAGCGGTTTTC CATAGGCTCCGCCCCCCCTGACG
7700 AGCATCACAAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAGATAC CAGGGGTTTCCCCCTGGAAGCTCCCTCGTGGGCTCTCC
7800 TGTTCGGACCCCTGCCGCTTACCGGATACCTGTCCGCTTTCTCCCTTCGGGAAGCGTGGCGCTTCTCAATGCTCACGCTGTAGGTATCTCAGTTCGGTG
7900 TAGGTCGTTCCGCTCCAAGCTGGGCTGTGTGCACGAACCCCCGTT CAGCCCCGACCGCTGGCCCTTATCCGGTAAC TATCGTCTTGAGTCCAACCCGGTAA
8000 GACACGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTA TGAGCGGTGCTACAGAGTCTTGAAGTGGTGGCCTAACTA
8100 CCGCTACACTAGAGGACAGTATTTGGTATCTGGCTCTGCTGAAGCCAGTTACCTTCGGA AAAAGAGTTGGTAGCTCTTGATCCGGCAACAAACCCACC
8200 GCTGGTAGCGGTGTTTTTTGTTTGC AAGCAGCAGATTACGGCGCAGAAAAAAGGATCTCAAGAAGATCCCTTTGATCTTTCTACGGGGTCTGACGCTC
8300 AGTGGAACGAAACTCACGTTAAGGATTTTGGTCATGAGATTATCAAAAAAGGATCTTCACCTAGATCCCTTTAAATTA AAAATGAAGTTTTTAAATCAAT
8400 CTAAGTATATATGAGTAAACTTGGTCTGACAGTTACCAATGCTTAATCAGTGAGGCACCTATCTCAGCGATCTGTCTATTTCTGTTCA TCCATAGTTGCC
8500 TGA TCCCCGTCGTGTAGATAACTACGATACGGGAGGGCTTACCATCTGGCCCCAGTGTGCAATGATACCGCGAGACCCACGCTCACCGGCTCCAGATT
8600 TATCAGCAATAAAC CAGCCAGCCGGAAGGGCCGAGCGCAGAAAGTGGTCCTGCAACTTTATCCGCCCTCCATCCAGTCTATTAA TTGTTGCCGGGAAGCTAG
8700 AGTAAGTAGTTCGCCCAGTTAATAGTTTGGCGCAACGTTGTTGCCATTGCTACAGGCATCGTGGTGT CACGGCTCGTTCGTTGGTATGGCTTCATTCAGCTCC

FIG. 22 CONT.

8800
GGTTCCCAACGATCAAGGCGAGTTACATGATCCCCCATGTTGTGCAAAAAAGCGGTTAGCTCCTTCGGTCCTCCGATCGTTGTCAGAAGTAAGTTGGCCG
8900
CAGTGTATCACTCATGGTTATGGCAGCACTGCATAATTCTCTTACTGTCAATGCCATCCGTAAGATGCTTTTCTGTGACTGGTGAGTACTCAACCAAGTC
9000
ATTCTGAGAAATAGTGATGCGGCGACCGAGTTGCTCTTGCCCGCGCTCAATACGGGATAATACCGCGCCACATAGCAGAACTTTAAAGTGCTCATCAT
9100
GGAAAAACGTTCTTCGGGGCGAAACTCTCAAGGATCTTACCGCTGTTGAGATCCAGTTCGATGTAACCCACTCGTGCACCCAACTGATCTTCAGCATCTT
9200
TTACTTTCACCAGCGTTTCTGGGTGAGCAAAACAGGAAGGCAAAATGCCCGCAAAAGGGAATAAGGGCGACACGGGAAATGTTGAATACTCATACTCTT
9300
CCTTTTCAATATATTGAAGCATTTATCAGGGTTATTGTCTCATGAGCGGATACATATTGAATGTATTTAGAAAAATAAACAAATAGGGGTTCCGGCGC
9400
ACATTTCCCGAAAGTGCCACCTGACGTCTAAGAAACCATTTATTATCATGACATTAACTATAAAATAGGCGTATCACGAGGCCCTTTCGTCTCGCGC
9500
GTTTCGGTGATACGGTGAACCTCTGACACATGCAGCTCCCGGAGACGGTCAACAGCTTGCTGTGAAGCGGATGCCGGGAGCAGACAAGCCCGTCAGGG
9600
CGCGTCAGCGGGGTGTGGCGGGGTGTCGGGGCTGGCTTAACATATGCGGCATCAGAGCAGATTGTACTGAGAGTGCACCATATGCGGTGTGAAATACCGCAC
9700
CGAATCGCGCGGAATAACGACAGTCGCTCCAAGGTCGTCGAACAAAGGTGAATGTGTGCCGAGAGCGGGTGGGAGACAGCGAAAGAGCAACTACGAA
9800
ACGTGGTGTGGAGGTGAATTATGAAGAGGGCGCGGATTTGAAAAGTATGTATATAAAAAATATATCCCCGGTGTTTTATGTAGCGATAAACGAGTTT
9900
TTGATGTAAGGTATGCAGGTGTGAAGTCTTTTGGTTAGAAAGACAAATCCAAAGTCTACTTGTGGGGATGTTCCGAAGGGGAAATACTTGTAATCTATAGG

FIG. 22 CONT.

1000 TCATACTCTTGTTTTTATTGGCACAAATATAATTACATTAGCTTTTGTAGGGGGCAATAAACAGTAAACACGATGGTAATAATGGTAAAAAAAAACAAG
10100 CAGTTATTTCGGATATATGTCGGCTACTCCTTGCGTCGGGCCCCGAAGTCTTAGAGCCAGATATGCCGAGCACCCGGGAAGCTCACCGATGAGAATGGCCAGAC
10200 CATGATGAAATAACATAAGGTGGTCCCGTCGGCAAGAGACATCCACTTAACGTATGCTTGCAATAAGTCCGAGTGAAGGAATAGTATTCTGAGTGTCTGT
10300 ATTGAGTCTGAGTGAGACAGCGATATGATTGTTGATTAAACCCTTAGCATGTCCGTGGGGTTTGAATTAACTCATAATATTAAATTAGACGAAATTATTTTT
AAAGTTTATTTTTTAATAAATTTCGGAGTACGCA -- (SEQ ID NO:68) --

FIG. 22 CONT.

Natural piggyBac orf	1	ATGGGTTAGTT	CTTTAGACGA	TGAGCATATC	CTCTCTGCTC	TTCTGCAAAG
Optimized piggyBac orf	1	ATGGGTAGca	gccTgGAtGA	TGAaCATATC	CTgagcGCgC	TgCTGCAGaG
Natural piggyBac orf	51	CGATGACCGAG	CTTGTTGGTG	AGGATTCTGA	CAGTGAAATA	TCAGATCACC
Optimized piggyBac orf	51	CGAcGAcGaa	CTgGTTGGTG	AaGATagcGA	cAGcGAAATc	agcGATCACC
Natural piggyBac orf	101	TAAGTGAAGA	TGACGTCCAG	AGCGATACAG	AAGAAGCGTT	TATAGATGAG
Optimized piggyBac orf	101	TgAGcGAAGA	cGAcGTTcAG	AGCGATACcG	AAGAAGCGTT	cATcGAcGaa
Natural piggyBac orf	151	GTACATGAAG	TGCAGCCCAAC	GTCAAGCGGT	AGTGAAATAT	TAGACGAACA
Optimized piggyBac orf	151	GTTcAcGAAG	TGCAGCCcGAC	cagcAGCGGT	AGcGAAATcc	TgGAtGAACA
Natural piggyBac orf	201	AAATGTTATT	GAACAACCAG	GTTCTTCATT	GGCTTCTAAC	AGAAATCTTGA
Optimized piggyBac orf	201	gAAcGTTATc	GAACAgCCgG	GTagcagcct	GGCgagcAAC	cGtATCctGA
Natural piggyBac orf	251	CCTTGCCACA	GAGGACTATT	AGAGGTAAGA	ATAAACATTG	TTGGTCAACT
Optimized piggyBac orf	251	CCcTGCCcGcA	GcGcACcATc	cGtGGTAAaa	AcAAACAcTG	TTGGagcACc
Natural piggyBac orf	301	TCAAAGTCCA	CGAGGCGTAG	CCGAGTCTCT	GCACTGAACA	TTGTCAGATC
Optimized piggyBac orf	301	agcAAaagCA	CccGcCGTAG	CCGtGTtagc	GCgCTGAACA	TTGTtcGtag
Natural piggyBac orf	351	TCAAAGAGGT	CCGACGCGTA	TGTGCCGCAA	TATATATGAC	CCACTTTTAT
Optimized piggyBac orf	351	cCAgcGtGGT	CCGAcCcgTA	TGTGCCGCAA	cATcTAcGAt	CCgCTgcTgT
Natural piggyBac orf	401	GCTTCAAAC	ATTTTtTACT	GATGAGATAA	TTTCGGAAAT	TGTAAAAATGG
Optimized piggyBac orf	401	GCTTCAAAC	gTTcTtTcACC	GATGAaATca	TcagcGAAAT	cGTgAAATGG

FIG. 23

Natural piggyBac orf	451	ACAAATGCTG	AGATATCAATT	GAAACGTCGG	GAATCTATGA	CAGGTGCTAC
Optimized piggyBac orf	451	ACCAAACGCCG	AaATcagcCT	GAAACGTCGc	GAAagcATGA	CCGGcGCgAC
Natural piggyBac orf	501	ATTTCGTGAC	ACGAATGAAG	ATGAAAATCTA	TGCTTTTCTTT	GGTATTCTGG
Optimized piggyBac orf	501	cTTcCGcGAt	ACcAAcGAaG	ATGAaATCTA	cGCcTTTCTTc	GGTATcCTGG
Natural piggyBac orf	551	TAAATGACAGC	AGTGAGAAAA	GATAACCACA	TGTCCACAGA	TGACCTCTTT
Optimized piggyBac orf	551	TgATGACcCGC	gGTGcGtAAA	GATAACCACA	TGagCACcCGA	TGAtCTgTTT
Natural piggyBac orf	601	GATCGATCTT	TGTCAATGGT	GTACGTCTCT	GTAATGAGTC	GTGATCGTTT
Optimized piggyBac orf	601	GATCGtagcc	TGagcATGGT	tTACGTtagc	GTtATGAGcC	GtGAcCGTTT
Natural piggyBac orf	651	TGATTTTTTG	ATACGATGTC	TTAGAAATGGA	TGACAAAAGT	ATACGGCCCCA
Optimized piggyBac orf	651	cGATTTTtCTG	ATcCGtTGTC	TgcGtATGGA	TGAtAAAAGc	ATcCGcCCgA
Natural piggyBac orf	701	CAC TTCGAGA	AAACGATGTA	TTTACTCCTG	TTAGAAAAAT	ATGGGATCTC
Optimized piggyBac orf	701	CcCTgCGcGA	AAACGATGTg	TTcACcCCgG	TTcGcAAAAAT	cTGGGATCTg
Natural piggyBac orf	751	TTTATCCATC	AGTGCATACA	AAATTACACT	CCAGGGGCTC	ATTGACCAT
Optimized piggyBac orf	751	TTcATCCAcC	AGTGCATcCA	gAAcTACAcC	CCgGGcGCgC	AccTGACCAT
Natural piggyBac orf	801	AGATGAACAG	TTACTTGGTT	TTAGAGGACG	GTGTCCGTTT	AGGATGTATA
Optimized piggyBac orf	801	cGATGAACAG	cTgCTgGGTT	TTcGtGGtCG	cTGTCCGTTT	cGtATGTAcA
Natural piggyBac orf	851	TCCCAAAACAA	GCCAAGTAAG	TATGGAATAA	AAATCCTCAT	GATGTGTGAC
Optimized piggyBac orf	851	TCCCgAAACAA	aCCgAGcAAa	TACGGtATcA	AAATCCTgAT	GATGTGTGAC

FIG. 23 CONT.

Natural piggyBac orf	901	AGTGGGTACGA	AGTATATGAT	AAATGGAATG	CCTTATTGG	GAAGAGGAAC
Optimized piggyBac orf	901	AGcGGTACcA	AgTAcATGAT	cAAcGGtATG	CCgTATcTGG	GtcGtGGtAC
Natural piggyBac orf	951	ACAGACCAAC	GGAGTACCAC	TCGGTGAAATA	CTACGTGAAG	GAGTTATCAA
Optimized piggyBac orf	951	cCAGACCAAC	GgTgTgCCgC	TgGGTGAAATA	CTACGTGAaA	GAacTgagcA
Natural piggyBac orf	1001	AGCCTGTGCA	CGGTAGTTGT	CGTAATATTA	CGTGTGACAA	TTGGTTCACC
Optimized piggyBac orf	1001	AaCCgGTGCA	CGGTAGcTGT	CGTAacATcA	CcTGTGACAA	cTGGTTCACC
Natural piggyBac orf	1051	TCAATCCCCTT	TGGCAAAAAA	CTTACTACAA	GAACCGTATA	AGTTAACCAT
Optimized piggyBac orf	1051	agcATCCCgc	TGGCgAAAAA	CcTgCTgCAg	GAACCGTATA	AacTgACCAT
Natural piggyBac orf	1101	TGTGGGAACC	GTGCGATCAA	ACAAACGCGA	GATACCGGA	GTACTGAAAA
Optimized piggyBac orf	1101	cGTGGGtACC	GtTcGtagcA	ACAAACGtGA	aATcCCGGA	GTgCTGAAAA
Natural piggyBac orf	1151	ACAGTCGCTC	CAGGCCAGTG	GGAACATCGA	TGTTTTGTTTT	TGACGGACCC
Optimized piggyBac orf	1151	ACAGcCGtag	CcGtCCgGTG	GGcACcagcA	TGTTcTGTTTT	cGAtGGtCCg
Natural piggyBac orf	1201	CTTACTCTCG	TCTCATATAA	ACCGAAGCCA	GCTAAGATGGT	TACTTATT
Optimized piggyBac orf	1201	CTgACcCTgG	TtagcTAcAA	ACCGAAaCCG	GCgAAaATGGT	gTACcTgct
Natural piggyBac orf	1251	ATCATCTTGT	GATGAGGATG	CTTCTATCAA	CGAAAGTACCG	GTAACCCG
Optimized piggyBac orf	1251	gagcagcTGc	GAcGAaGAcG	CgagcATCAA	CGAAAGcACCG	GTAACCCG
Natural piggyBac orf	1301	AAATGGTTAT	GTATTATAAT	CAAACATAAG	GCGAGTGGAC	ACGCTAGAC
Optimized piggyBac orf	1301	AgATGGTTAT	GTAcTAcAAc	CAGACCAAAg	GCGGtGTGGAc	AcCcTgGAt

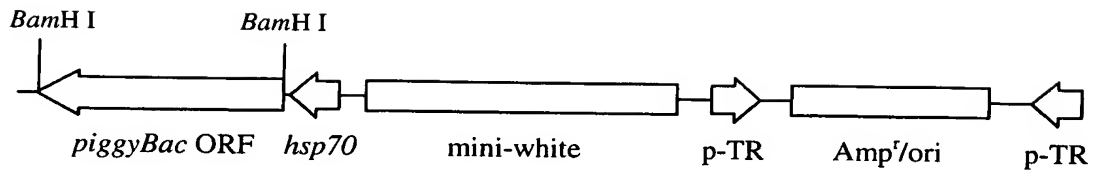
FIG. 23 CONT.

Natural piggyBac orf	1351	CAAATGTGTT	CTGTGATGAC	CTGCAGTAGG	AAGACGAATA	GGTGGCCTAT
Optimized piggyBac orf	1351	CAGATGTGca	gcGtTATGAC	CTGCAGccGc	AAaACcAAcc	GcTGGCCgAT
Natural piggyBac orf	1401	GGCATTATTG	TACGGAAATGA	TAAACATTGC	CTGCATAAAT	TCTTTTATTA
Optimized piggyBac orf	1401	GGCgcTgcTG	TACGGtATGA	TcAACATcGC	CTGCATcAAc	agcTTTATcA
Natural piggyBac orf	1451	TATACAGCCA	TAAATGTCAGT	AGCAAGGGAG	AAAAGGTTCA	AAGTCGCAAA
Optimized piggyBac orf	1451	TcTACAGCCA	TAAcGTtAGc	AGCAaAGGtG	AAAaAGTTCA	gAGccGCAAA
Natural piggyBac orf	1501	AAATTTATGA	GAAACCTTTA	CATGAGCCCTG	ACGTCAATCGT	TTATGCGTAA
Optimized piggyBac orf	1501	AAATTTATGc	GtAACCTgTA	CATGAGCCCTG	ACcagcagct	TcATGCGTAA
Natural piggyBac orf	1551	GCGTTTAGAA	GCTCCTACTT	TGAAGAGATA	TTTGCGCGAT	AAATATCTCTA
Optimized piggyBac orf	1551	aCGTcTgGAA	GCcCCgACcc	TGAaAcGtTA	TcTGCGCGAT	AAcATCagca
Natural piggyBac orf	1601	ATATTTTGGC	AAATGAAGTG	CCTGGTACAT	CAGATGACAG	TACTGAAGAG
Optimized piggyBac orf	1601	AcATcctGGC	gAAcGAAGTG	CCgGGTACca	gcGATGAtAG	cACcGAAAGaa
Natural piggyBac orf	1651	CCAGTAATGA	AAAAACGTAC	TTACTGTACT	TACTGCCCT	CTAAAAATAAG
Optimized piggyBac orf	1651	CCgGTgATGA	AAAAACGTAC	cTACTGTACC	TACTGCCCGa	gcAAAAATccG
Natural piggyBac orf	1701	GCGAAAGGCA	AATGCATCGT	GCAAAAAATG	CAAAAAAGTT	ATTTGTGCGAG
Optimized piggyBac orf	1701	cCGtAAaGCg	AAcGCgagct	GCAAAAAATG	CAAAAAAGTT	ATcTGTGCGtG
Natural piggyBac orf	1751	AGCATAATAT	TGATATGTGC	CAAAGTTGTT	TCTGA--	(SEQ ID NO:69) --
Optimized piggyBac orf	1751	AaCATAAcAT	cGATATGTGC	CAgAGcTGTT	TCTGA--	(SEQ ID NO:70) --

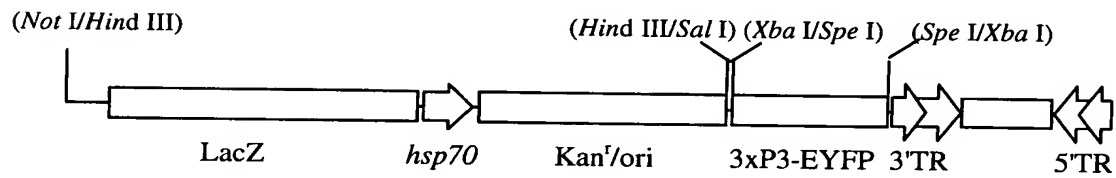
FIG. 23 CONT.

FIG. 24

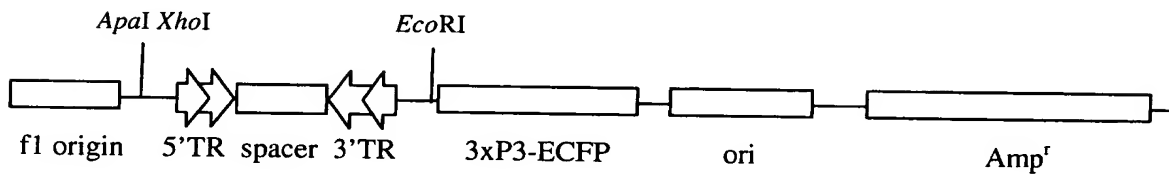
A. pCaSpeR-hs-orf



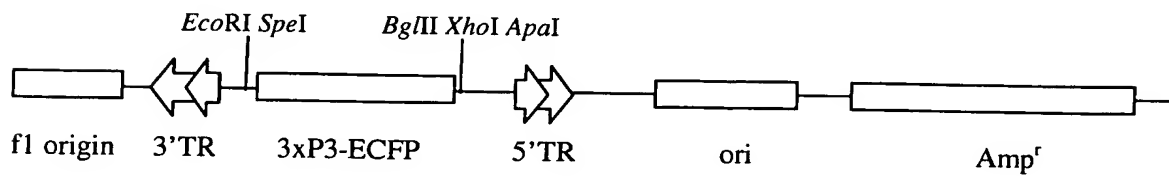
B. p(PZ)-Bac-EYFP



C. pBSII-ITR1.1k-ECFP



D. pXL-BacII-ECFP



pIAO-P/L-589bp

FIG. 25

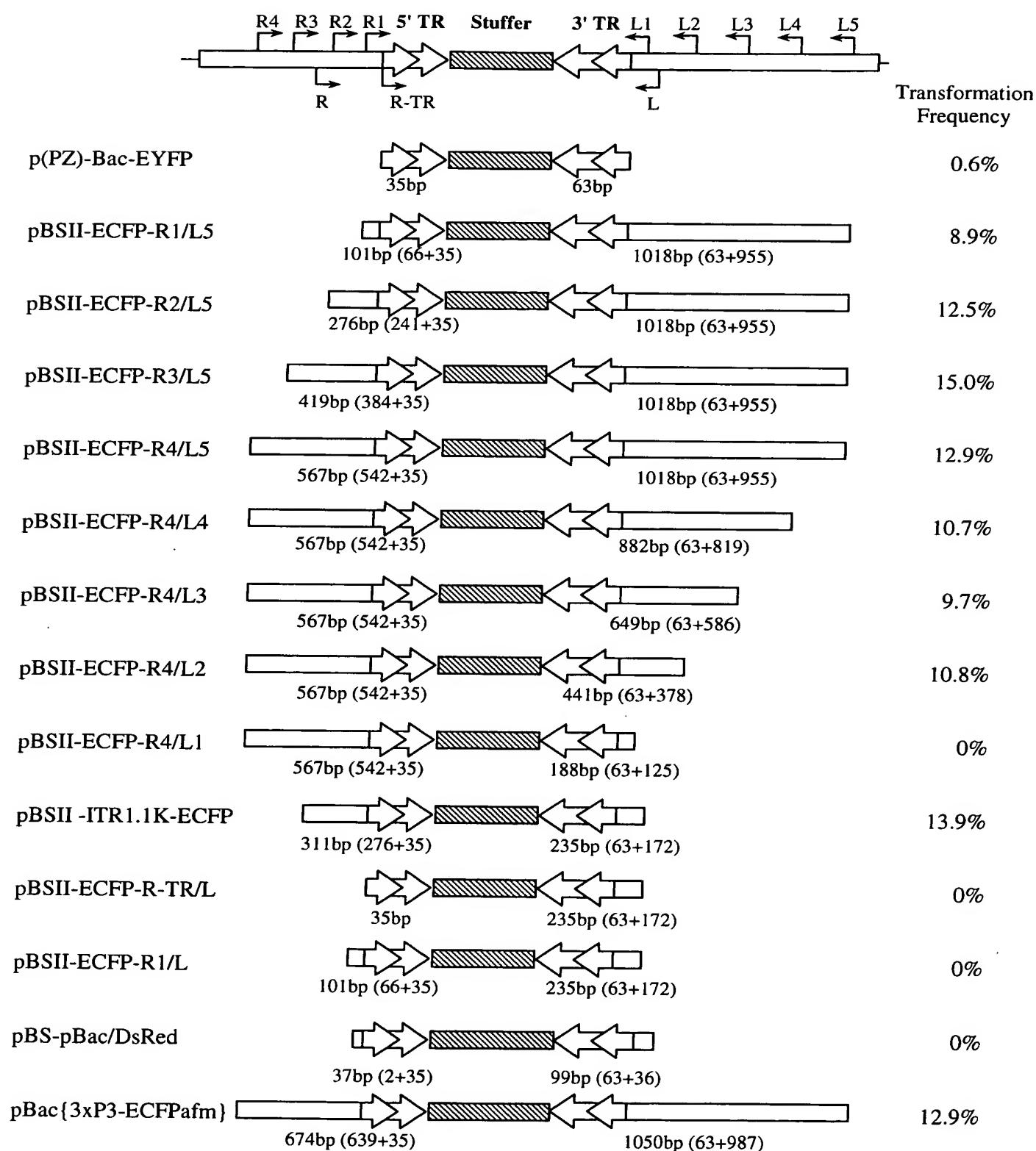
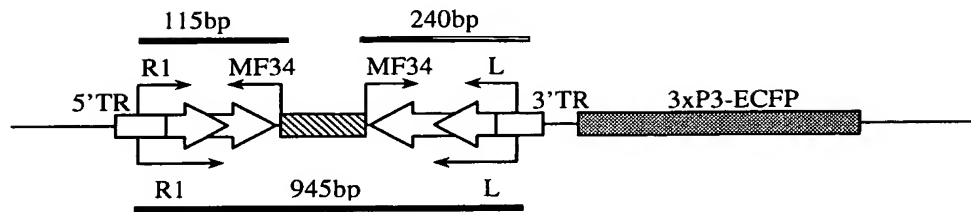


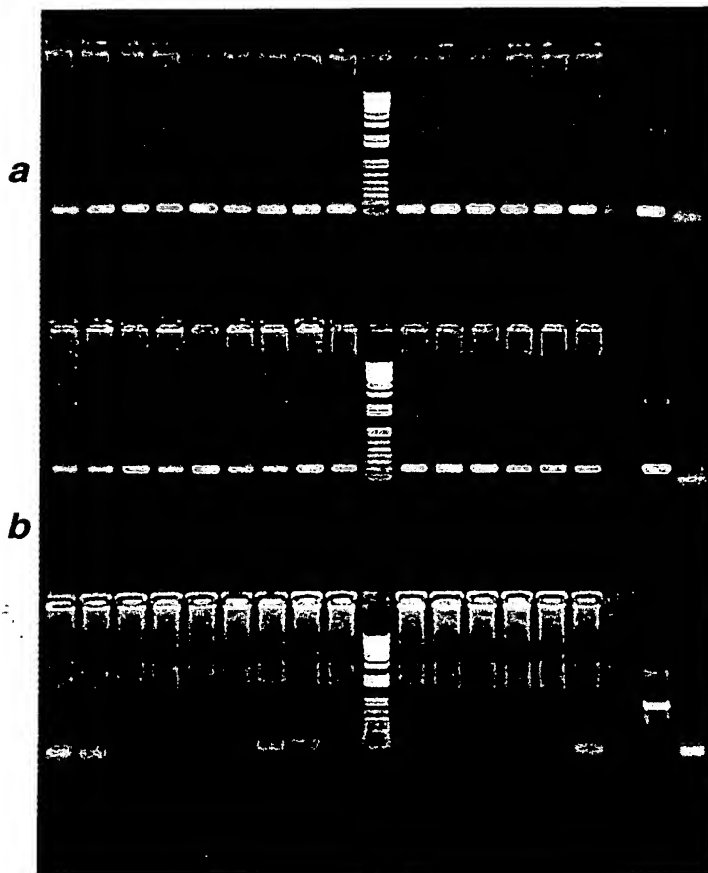
FIG. 26

A



B

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19



a: PCR using IFP2_R1 + MF34

b: PCR using IFP2_L + MF34

c: PCR using IFP2_R1 + IFP2_L

Lane 1-5: pBSII-ITR1.1K-ECFP

Lane 6-7: pBSII-ECFP-R1/L5

Lane 8-9: pBSII-ECFP-R2/L5

Lane 10: 1KB plus ladder (Invitrogen)

Lane 11: pBSII-ECFP-R3/L5

Lane 12: pBSII-ECFP-R4/L5

Lane 13: pBSII-ECFP-R4/L4

Lane 14: pBSII-ECFP-R4/L3

Lane 15: pBSII-ECFP-R4/L2

Lane 16: M23.1 *piggyBac* strain

Lane 17: w^{1118} white eye strain

Lane 18: pBSII-ITR1.1K-ECFP plasmid

Lane 19: No DNA

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